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## Abstract

Given the increasing number of students with learning disabilities attending postsecondary educational institutions, it is essential to determine the factors which may play a predictive role in postsecondary education in order to inform educational practices and interventions prior to high school graduation. As such, the primary aim of the current study was to examine which variables may hold predictive value for postsecondary education attendance for students with learning disabilities. This study analyzed the National Longitudinal Transition Study-2 (NLTS2) in an attempt to identify the variables that predicted the likelihood that youth with disabilities would attend more postsecondary education. A total of 435,437 youth with learning disabilities were included in the present study. The sample of youth with learning disabilities was mostly male (60.9%); family household income was roughly evenly distributed amongst the following three categories: \$25,000 or less, \$25,001-50,000, and more than \$50,000. Youth's education attainment ranged from not finishing high school to completing a four-year college degree. Results indicated that reading achievement, family involvement, and social support played significant roles in predicted graduation from a two-year college or university, such that postsecondary education attendance increased if the youth was had higher reading achievement, had a parent/guardian involved in school activities, and had social support. It was also determined that math achievement, the youth's role in IEP/transition planning, social support, and family involvement all played significant roles in the predicted number of credits earned from a postsecondary institution, such that number of credits increased if the youth had higher math achievement, played more of a leadership role in IEP/transition planning, had social support, and had a parent/guardian involved in school activities. Directions for further research and implications for best transition practices are denoted in light of these results.

PREDICTORS OF POSTSECONDARY EDUCATION ATTENDANCE FOR YOUTH WITH  
LEARNING DISABILITIES

by

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Dissertation

Submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in School Psychology.

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## Predictors of Postsecondary Education Attendance for Youth with Learning Disabilities

An increasing number of students with learning disabilities are attending postsecondary education (Johnson, Zascavage & Gerber, 2008; Rath & Royer, 2002; Sparks & Lovett, 2009). However, these individuals are at greater risk for dropping out of school than their non-disabled peers (U.S. Department of Education, 2006). Given the long-term benefits of postsecondary education attendance, it is essential to determine what factors are predictive of postsecondary education for students with learning disabilities. Transition services, a federal mandate for students with learning disabilities, are hypothesized to have a positive impact on the postsecondary outcomes of students with learning disabilities. Research indicates that positive outcomes from successful transition services include a better understanding of one's disability, improved decision-making and self-advocacy skills, greater high-school graduation rate, increased post-secondary education, and higher employment wages (Kochhar-Bryant & Izzo, 2006; Malloy, Cheney, & Cormier, 1998). Recently, Koehler (2010) examined the relative contribution of self-autonomy, teacher attributions, and parent involvement to students' with learning disabilities expectations for future success; finding that students and parents tended not to see self-autonomy as vital to achieving postsecondary goals. In addition, parents of students with learning disabilities emphasized the importance of goal-setting and social skills, and rated current transition processes as largely ineffective. Given these findings, it is important to obtain a more comprehensive understanding of current postsecondary outcomes for students with learning disabilities as well as examine additional factors that may hold predictive value for postsecondary education attendance and potentially help shape transition planning services to maximize postsecondary success.

## **The Definition of Specific Learning Disability**

Specific learning disabilities, as originally defined by the U.S. Office of Education (1968) refers to a disorder, “...in one or more of the basic psychological processes involved in understanding or in using a language, spoken or written, which may manifest itself in an imperfect ability to listen, speak, read, write, spell, or to do mathematical calculations...” (p. G1082). However, since its inception, this definition and corresponding federal legislation has undergone a number of changes that affect the diagnosis and subsequent educational programming for youth with learning disabilities.

In 1977, an inclusionary criterion in the form of an intellectual ability-achievement discrepancy was introduced (United States Office of Education, 1977). Under this criterion, individuals could be diagnosed with a learning disability if they demonstrated a discrepancy between a measure of intellectual functioning (i.e., an IQ assessment) and performance in one or more of the following areas: oral expression, listening comprehension, written expression, basic reading skills, reading comprehension, mathematics calculation, or mathematical reasoning. This definition also included a number of exclusionary criteria “such as environmental, cultural, or economic disadvantage that may not be the primary cause of low achievement in identifying LD” (Fletcher, n.d., p. 2). This discrepancy model for diagnosing learning disabilities persisted until the 2004 reauthorization of IDEA.

With the reauthorization of IDEA in 2004, a model was introduced that permits inclusionary criteria based on Response to Intervention (RTI), as well as introducing reading fluency as an area of achievement and changing mathematics reasoning to mathematics problem solving. The statute describes that an individual may be diagnosed with a learning disability if he or she, “...does not make sufficient progress to meet...standards in one or more of the [areas of



achievement] when using a process based on the child's response to scientific, research-based intervention" (U.S. Department of Education, 2004, p. 9). Fletcher (n.d.) clarifies, "School districts may also select one of several discrepancy models, but that identification model must be consistent with State-adopted criteria. Based on the language in the statute, this means that a State must adopt criteria for an RTI model (pp. 2)". Lastly, IDEA 2004 specifies the following inclusionary criteria for the diagnosis of learning disabilities:

To ensure that underachievement in a child suspected of having a specific learning disability is not due to lack of appropriate instruction in reading or math, the group must consider, as part of the evaluation... (1) Data that demonstrate that prior to, or as part of, the referral process, the child was provided appropriate instruction in regular education settings, delivered by qualified personnel; and (2) Data-based documentation of repeated assessments of achievement at reasonable intervals, reflecting formal assessment of student progress during instruction... (pp. 3)

As such, whereas previous iterations of IDEA suggested that the evaluation of learning disabilities include evidence that low achievement is not the result of inadequate instruction, the 2004 reauthorization explicitly stated this as an inclusionary criterion (Fletcher, n.d.).

As the definition of learning disabilities becomes more specific, the rate of individuals aged six to 21 has steadily been decreasing. IDEA Part B Child Count data from 2007 to 2011 (available at <http://tadnet.public.tadnet.org/pages/712>) indicate that youth with specific learning disabilities constituted 43.6% of the population of youth with disabilities in 2007. During the 2010-11 school year, approximately 37% of all children and youth receiving special education services had a specific learning disability (Aud, Wilkinson-Flicker, Kristapovich, Rathbun, Wanx, & Zhang, 2013).

### **Accommodations for Youth with Specific Learning Disabilities**

The Association on Higher Education and Disability (AHEAD) outlines a framework for the provision of accommodations for individuals with disabilities in postsecondary settings. Such

guiding documents are important because, as AHEAD notes, there is no legislation or regulations that detail the way in which postsecondary institutions document and provide accommodations (AHEAD, 2012). AHEAD recommends three possible types of documentation: (a) primary documentation such as self-report from the student, (b) secondary documentation such as observations or interactions with higher education disability professionals, and (c) tertiary documentation such as reports from health care providers, school psychologists, teachers, or other relevant professionals. AHEAD notes that student self-report is an imperative aspect of documentation and “may be sufficient for establishing disability and a need for accommodation” (AHEAD, 2012, p. 2). AHEAD further notes that this self-report must be evaluated for clarity and reliability of description of disability and its effect on educational performance. However, AHEAD notes that postsecondary institutions can often, “...evaluate whether a requested accommodation is reasonable or not with minimal reliance on external documentation... even if the student has never received formal accommodations or recently acquired a disability and is seeking guidance to determine accommodations” (AHEAD, 2012, p. 3). They go on to stress that tertiary documentation may not be required for provision of accommodations and that postsecondary institutions, “cannot create documentation processes that are burdensome or have the effect of discouraging students from seeking protections and accommodations to which they are entitled” (AHEAD, 2012, p. 4). With a lack of regulations or legislation dictating how to determine eligibility for accommodations, postsecondary institutions are given autonomy to set procedures as long as they do not discriminate against individuals with disabilities.

AHEAD also notes that students with learning disabilities may face specific challenges when trying to obtain accommodations from postsecondary institutions (Wolanin & Steele, 2004). They note the inconsistency of the requirements for documentation across institutions and

the possible difficulties with having a “hidden disability” in that those youth may face skepticism from higher education professionals as to the legitimacy of their disability and its educational impact. (Wolanin & Steele, 2004, p. 50). They state that youth with learning disabilities may have a “heavier burden of proof” than youth with disabilities that are clearly visible (Wolanin & Steele, 2004, p. 50).

### **Young Adults with Learning Disabilities**

The 30<sup>th</sup> Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act (2008) and the Condition of Education (2012) published by the National Center for Education Statistics provide some information on the current state of youth with disabilities in the United States. According to The Condition of Education (2012), the largest category of students receiving special education services is specific learning disability, with 38% of students who are identified with a disability being those students with a specific learning disability (referred to in this document as simply “learning disability”). This percentage is comparable across all racial and ethnic groups.

Over the last decade, graduation rates for students with specific learning disabilities increased from 48.7% to 61.6% and drop-out rates for students with specific learning disabilities decreased from 43.4% to 25.1% (U.S. Department of Education, 2006). In examining these statistics, states report on the improvement efforts they have put in place in order to increase graduation rates and decrease drop-out rates for students with disabilities in their Annual Performance Reviews (APRs). In the summary of all APRs prepared for OSEP, the National Dropout Prevention Center for Students with Disabilities notes that many states reported similar or identical improvement activities for graduation, dropout, and postsecondary transition as those indicators are “intimately tied” to one another. Specifically, amongst the most commonly

reported improvement activities were the use of advocates for students with disabilities at-risk of dropping out and the use of data-based decision making including early warning systems (National Dropout Prevention Center for Students with Disabilities, 2012). This illuminates the need to couch the exploration of postsecondary transition (and the outcomes thereafter) within the lens of the practices and policies in place in secondary school. Research on the graduation rate and post-graduation outcomes of individuals with learning disabilities also highlights a number of factors that have been shown to contribute to student success, including the student's role in the transition and goal-setting process, family involvement in education, social support, and academic achievement with an emphasis on areas of functional performance (Benz, Lindstrom, & Yavanoff, 2000; DaDeppo, 2009; Merdalet, 2000; Murray & Naranjo, 2008).

Although these findings suggest an increasing trend in high-school graduation rates for students with learning disabilities, a considerable number of students with learning disabilities do not graduate from high school, thus severely limiting their opportunities for success in postsecondary settings. Recent studies have, again, focused on the aforementioned factors in terms of students with disabilities dropping out; however, research has also focused heavily on the impact of race/ethnicity, SES, and gender. Researchers note, though, that it is difficult to study the first two factors – race/ethnicity and SES – in isolation, as the two are often related (Murray, 2003; Murray & Naranjo, 2008). As Murray (2003) notes, “disability status, racial status, and SES independently increase the likelihood of a negative postschool outcome, and the accumulation of these risk factors may increase this likelihood even more”. Nonetheless, it is imperative to focus on those factors that can both inform future practice and guide program reform in terms of graduation and postschool outcomes for youth with disabilities.

## **Postsecondary Expectations of Students with Learning Disabilities, Teachers, and Parents**

Although graduation rates for students with learning disabilities have increased in the last decade, approximately 40% of students with learning disabilities do not graduate from high school. One area that may be helpful in understanding why students with learning disabilities do not graduate from high school is the postsecondary expectations that students with learning disabilities hold, as well as their teachers and parents. For example, it is important to examine what students with learning disabilities expect from postsecondary settings. It is also important for school personnel should have a grasp of what students with learning disabilities expect to achieve after secondary school, whether that be postsecondary education, employment, or other goals. Ideally, parents and teachers should also express their expectations so that they can help collaboratively plan for the student's future.

To date, very few published studies has focused on the postsecondary goals of individuals with learning disabilities. Kortering, Braziel and McClannon (2010) explored the post-school plans of students with and without learning disabilities. A survey was administered regarding the post-school plans of 488 high school students, 82 (16.8%) of which were diagnosed with a learning disability. Results of the study indicated that students with learning disabilities were more likely to report planning to attend a 2-year college or to obtain direct employment than students without disabilities. Concomitantly, students with learning disabilities were less likely to report expecting to attend a 4-year college or to obtain a prestigious career than students without disabilities.

Only one study to date has examined students' and parents' expectations for postsecondary success in concert. Utilizing data from the National Longitudinal Transition Study – 2 (NLTS-2), Koehler (2010) examined the postsecondary expectations of a sample of 6,859

student respondents, 6,859 parent respondents, and 1,717 teacher respondents, as well as the factors that contributed to those expectations. This study examined both student- and teacher-reported likelihood that the youth with learning disabilities would graduate from high school with a regular high school diploma, attend postsecondary education, graduate from a vocational/technical postsecondary school, graduate from a two-year college, and graduate from a 4-year college or university. Additionally, Koehler (2010) explored the predictive value of graduating from a postsecondary institution based on transition services, family involvement, and teacher and student characteristics. The results of this study suggested that students with learning disabilities and their parents have similar expectations for students' success in postsecondary settings. The strongest relationships were revealed when respondents were asked to rate the likelihood of the students graduating from high school with a regular high school diploma and the likelihood of the student graduating from a 4-year college or university. Although this study suggested higher expectations for students with learning disabilities to graduate from a 4-year college or university than Kortering and colleagues (2010), it is important to note that there was still a high amount of variability in expectations. In addition, this study indicated that neither students with learning disabilities nor their parents tended to rate self-determination skills as highly important; this is contradictory to previous studies that highlight the importance of self-determination skills for postsecondary success (Gil, 2007; Kochhar-Bryant & Izzo, 2006; Koehler, 2010; Madaus, 2005; Test, Fowler, Wood, Brewer, & Eddy, 2005). Lastly, Koehler (2010) noted that the student's role in their own IEP/transition planning held predictive value for postsecondary expectations, building upon the best practices literature that suggests that students with disabilities should take an active role in the transition process.

## **Factors Contributing to Successful Transition for Students with Learning Disabilities**

The above data suggest that a number of variables including graduation rate, dropout rate, and postsecondary education attendance are improving for students with learning disabilities. However, it is important to also examine the factors that contribute to a successful transition to postsecondary settings for students with learning disabilities, as well as those factors which contribute to perseverance in the postsecondary educational setting. Among the factors suggested in the literature are self-advocacy and self-determination skills and effective transition practices in the secondary setting,

**Self advocacy and self-determination.** A number of studies have highlighted the importance of students with disabilities developing self-advocacy skills for the transition to post-secondary settings (Eckes & Ochoa, 2005; Field, n.d.; Field & Hoffman, 2007; Gil, 2007; Kochhar-Bryant & Izzo, 2006; Madaus, 2005; Malloy, Cheney & Cormier, 1998; Phillips, 1990; Test, Fowler, Wood, Brewer, & Eddy, 2005; Wehmeyer & Schwartz, 1997). As students transition from high school to post-secondary settings, the responsibility for obtaining accommodations shifts directly to the students. This shift in responsibility significantly deviates from the procedures followed during the school years. Specifically, prior to graduating from high school, all accommodations for students with learning disabilities are arranged by school personnel. It has been argued that this reliance on the school system may place students with learning disabilities at even greater risk for exhibiting learned helplessness with respect to their educational needs (Phillips, 1990). For example, during the transition to college, students with learning disabilities must inform the disability services on campus of their disability, which poses a problem for those who are not yet self-advocates or who may not fully understand their disability. As a result, these students may be unable to initiate such a process, or may be unable

to request the appropriate accommodations (Gil, 2007). Furthermore, students in postsecondary settings are likely to encounter individuals (e.g., professors) who may question their educational needs or the validity of accommodations because they have no formal training in special education law or educational practices (Eckes & Ochoa, 2005).

Phillips (1990) argues that once students with learning disabilities receive education and guidance, they can demonstrate a full understanding of their disability, their individual strengths and weakness, and request the appropriate classroom accommodations. However, these students need to be educated regarding career and academic opportunities, and need to receive instruction in developing self-advocacy skills. To address this important, but lacking, requisite skill, Test and colleagues (2005) identified four main components skills, including knowledge of: (a) self; (b) rights; (c) communication; and (d) leadership. These self-advocacy skills are critical for individuals with learning disabilities as they transition to adulthood and postsecondary settings (Kochhar-Bryant & Izzo, 2006), yet these skills are rarely, if ever, included in the curriculum for students with disabilities. It has been estimated that only 50% of public high schools implement curricula to teach self-advocacy skills to secondary students with disabilities (Kochhar-Bryant & Izzo, 2006).

One possible reason why self-determination is so rarely taught in schools could be that teachers doubt the abilities of students with disabilities to effectively reflect and develop plans of action. Carter and colleagues (2009) found that students with disabilities tended to rate their level of self-determination lower than their teachers rated their level of self-determination. A lack of social skills and evidence of problem behaviors, both common concerns for students with disabilities, were noted as playing a negative role in the development of self-determination.



Nonetheless, Carter and colleagues reported that family involvement had a positive influence on the development of self-determination for students with disabilities.

Although there may be barriers in the development of self-determination skills within the educational setting, these skills are nonetheless essential for long-term success of individuals with disabilities. Wehmeyer and Schwartz (1997) reported that adults with disabilities stress the importance of self-advocacy and determination skills, as these skills can generalize to other areas of the individual's life (Field, n.d.). Furthermore, once these skills are developed, positive outcomes are observed. In a study conducted by Malloy et al. (1998), staff working with students with disabilities who had been involved in a self-advocacy and self-determination program reported a greater high-school graduation rate, more post-secondary education, and increased employment wages for students with disabilities.

Transition planning in secondary educational settings can be an excellent opportunity for students with learning disabilities to engage in self-advocacy and self-determination activities. As Field and Hoffman (2007) note, self-advocacy and self-determination skills are best taught when integrated as “a central organizing component” (p. 182). In other words, students with learning disabilities should learn how to practice the use of self-advocacy skills in all aspects of their education. For example, Field and Hoffman (2007) recommended that students with disabilities apply their self-advocacy skills within the context of Individualized Education Program (IEP) meetings (i.e., the meeting at which a multidisciplinary team discusses the student's educational program and any changes to classification or programming). Students' participation in the development of the Summary of Performance (i.e., a tool recommended for use during transition in which students, teachers, and others collaboratively provide a functional summary of the student's performance as well as postsecondary goals) is another opportunity for

students to practice self-advocacy and decision-making skills as well as providing students with assistance in order to better understand their disability (Kochhar-Bryant & Izzo, 2006).

**Transition practices.** A number of models of effective transition practices for students with disabilities have emerged. Several factors are common to all of these models including: (a) collaboration among individuals involved in the transition process; (b) making transition assessment a dynamic process; (c) and incorporating elements to increase students' sense of self-determination and self-advocacy. In one of the first models reported, Leconte (2006) outlines "cardinal rules" for meaningful and effective transition assessment which encompass, "customized assessment for individual consumers, use of more than one method or instrument, and triangulating information to validate findings" (p. 114). Leconte also discusses the importance of the content contained in the Summary of Performance and highly stresses that when at all possible, the student should be involved in the development of the Summary of Performance. In terms of the Summary of Performance, Leconte advises that it should be written in functional terms in order to assure that the student understands all of the information included, as do those who will use the Summary of Performance in varied postsecondary settings. Data for the Summary of Performance should be collected from multiple sources, including teachers, family (not just parents), adult services providers, and the student. The Summary of Performance should go beyond merely a summary of past performance, and should include information about the student's interests and goals. Lastly, Leconte emphasizes that "the form should fit the student, not the other way around" (p. 121).

In a second model, Gil (2007) describes how to improve upon the process, mainly stressing the importance of student involvement. Gil argues that students must be active in the development of their own portfolio, which not only increases students' involvement, but also

aids in the development of the Summary of Performance. For example, the greater the level of involvement, the greater likelihood that students will have a better understanding of their disabilities and corresponding needs. If students are planning on transitioning to a postsecondary educational setting, Gil recommends that a college representative be present at the Individualized Education Program (IEP) meetings or at least provide information to the student for the IEP meetings that will be helpful for transition to postsecondary settings.

In a third model, Kochhar-Bryant and Izzo (2006) stress the importance of transition assessment being a collaborative process. These authors argue that students must be able to self-identify after high school (i.e., students must identify themselves as a student with a learning disability to his/her professors in order to receive accommodations), and getting them involved particularly in the Summary of Performance process is an excellent way to facilitate a deeper understanding of their disability. Parents should also be involved in the development of the Summary of Performance, because they are excellent sources of how the students' disability affects their functioning outside of the school setting. In order to develop the most comprehensive Summary of Performance, school professionals should be working to collaborate with students and their parents, and include other relevant sources of information.

Both Kochhar-Bryant and Izzo (2006) as well as Dukes and colleagues (2007) recommend that school professionals use a template for the Summary of Performance that was developed during a national summit (the National Transition Documentation Summit, 2005). The template includes five sections: (a) background information; (b) student's postsecondary goals; (c) summary of performance, consisting of academic, cognitive, and functional levels of performance; (d) recommendations to assist the student in meeting postsecondary goals; and (e) student input. Because the Summary of Performance can be used for documentation of a

disability under Section 504; it is critical it be comprehensive, inclusive, and actively involve the student in its development.

In a fourth model, Sitlington and Clark (2007) emphasize the importance of the dynamic and collaborative nature of transition assessment. With the new mention of functional performance in IDEA, transition assessment should include information about the individual's social skills, life skills, and employability. It is important for school professionals to assess the individual's strengths and preferences in each area. The authors recommend that multiple types of assessments should be used for transition assessment, including but not limited to, background information, interviews, standardized tests, curriculum-based assessment techniques, performance samples, behavioral observation techniques, and situational assessment. In addition, the authors argue that student input is crucial, as is the input of teachers and all relevant school personnel, as well as parents and other family members.

### **Barriers to Successful Transition for Students with Learning Disabilities**

Despite the previously reviewed best practice models for transition, many postsecondary students with learning disabilities are not benefiting from transition services (Leconte, 2006; Zhang et al., 2005). Therefore, it is necessary to examine some of the major barriers that have been identified as inhibiting the transition process with this population. Such barriers include internal student factors such as learned helplessness and social problems, as well as external factors such as attribution errors on the part of teachers and parents.

**Learned helplessness.** Learned helplessness is a common problem among adolescents with learning disabilities (Hallenbeck, 2002; Klein, 1990). Learned helplessness can be defined as "...experience with uncontrollable events [that] can lead to the expectation that no responses in one's repertoire will control future outcomes" (Girgus, Nolen-Hoeksema, & Seligman, 1986,

p. 435). It should be no surprise that many students with disabilities develop learned helplessness, given the likelihood that they have experienced myriad failures in school and have little control in planning their education. This can often lead students with learning disabilities to have lower perceptions of their abilities than their non-learning disabled peers (Chapman, 1988; Friedman & Medway, 1987). The empirical studies that have examined learned helplessness in school settings have found that students with learning disabilities tend to exhibit higher levels of learned helplessness than their non-learning disabled peers (Crinean, 1987; Valås, 2001).

One explanation for this phenomenon among children with learning disabilities relates to differing attributional styles. Chapman (1988) found that students with learning disabilities tend to feel more externally controlled than typically-developing peers. This orientation style can lead to learned helplessness because it is associated with outcomes being perceived as out of one's direct control. In a study that compared children with learning disabilities to their typically-developing peers, Valås (2001) found that children with learning disabilities had more negative attributional styles than students without disabilities. Often, a negative attributional style results in children believing that their failures can be attributed to internal causes such as lack of ability and that their successes can be attributed to external causes such as ease of task or luck. As follows logically, children with learning disabilities often express lower expectations for future success than their typically-developing peers (Chapman, 1988; Klein, 1990; Stipek & Hoffman, 1980; Valås, 2001).

These feelings of helplessness, failure, and expectations of future failure can have detrimental effects on student's academic and social functioning. Gerner (1983) found that children with learning disabilities may be more negatively affected by failure in academic and social areas because they are likely to experience higher rates of failure than their academically

successful peers. In addition to difficulties interacting with peers, children with learning disabilities may have lower self-esteem and higher depressive tendencies (Valås, 2001). In summary, students with learning disabilities are likely to engage in learned helplessness behaviors because of histories of failure and frustration. This disposition can lead children with learning disabilities to believe that they are failing due to a lack of ability, which can have serious consequences for students who are leaving high school and trying to determine their future based on their expectations for future competency and success.

**Social problems associated with learning disabilities.** Students with learning disabilities tend to have more inter- and intra-personal problems than their non-learning disabled peers (Crinean, 1987). As Smith and Nagle (1995) note, “Research supports the notion that children with LD are stigmatized; they are viewed by teachers and peers as displaying more negative and fewer pro-social behaviors” (p. 364). This stigmatization can have negative effects both in and outside of the classroom, and can significantly impair students’ relationships with their teachers. Students with limited social skills, more frequent behavior problems, and less emotional regulation tend to have more negative relationships with their teachers; all of which are problems that are characteristic of students with learning disabilities (Bender & Wall, 1994; Bryan, Donahue & Pearl, 1981; Semrud-Clikeman & Schafer, 2000; Swanson & Malone, 1992; Vaughn & Haager, 1994). Further, students with learning disabilities may require assistance above and beyond that of most typically-developing students, yet their relationships with teachers from whom they require help may be significantly hindered as a result of social problems that are a consequence of their disability.

**Attribution errors of teachers and parents.** Research has shown that in addition to the attribution patterns of students with learning disabilities in regards to their own abilities, teachers

and parents also tend to have specific attributional styles pertaining to students with learning disabilities, which can have detrimental effects. Parents and teachers of students with learning disabilities tend to make more internal attributions regarding both success and failure. In other words, the student's successes can be attributed to internal causes such as ability and effort, and failure is also attributed to internal causes, or in this case, lack of ability (Lavelle, 1978; Pearl & Bryan, 1982; Tollison, Palmer & Stowe, 1987). In addition, one study reported that teachers were inclined to attribute gains in the academic performance of students with learning disabilities to the talents and abilities of the previous teacher, rather than to students' own personal gains (Rolison & Medway, 1985).

Perhaps, in part due to this pessimistic attributional style, parents and teachers of children with learning disabilities often have low expectations for future performance and success (Chapman & Boersma, 1979; Clark & Artiles, 2000; Dukes & Saudargas, 1989; Rolison & Medway, 1985; Tollison, Palmer & Stowe, 1987). These lowered expectations can be a result of simply the label of learning disability (Clark & Artiles, 2000; Tollison et al., 1987), the child's behavior (Dukes & Saudargas, 1989), or the child's past performance (Rolison & Medway, 1985). Negative attributional styles and low expectations have been linked to negative outcomes for children with learning disabilities. Some studies suggest that a negative attributional style will act as a cycle creating a self-fulfilling prophecy in children; if the teacher is sending children cues that they have low ability, they might begin to believe it and act in such a way more frequently (Clark & Artiles, 2000). Lowered expectations are correlated with fewer positive parental interactions and more frequent negative interactions (Pearl, Donahue & Bryan, 1986). Negative attributional styles for children with learning disabilities have also been linked to negative outcomes such as unclear achievement goals, inability to effectively strategize, lower

self-expectations, poor academic performance, and deficits in help-seeking behaviors (Graham, 1991), all of which are crucial skills for students transitioning to post-secondary institutions.

**Systemic transition problems.** Despite the above promising transition models and conceptualizations, transition often fails to be the dynamic and collaborative process previously discussed. Zhang, Ivester, Chen, and Katsiyannis (2005) dishearteningly reported that the professionals responsible for coordinating transition services (e.g., guidance personnel, speech and language specialists, occupational and physical therapists, assistive technology specialists, social workers, vocational-technical education teachers, work-study coordinators, community-based vocational coordinators) were often not involved in transition assessment and planning. Further illustrating the lack of collaboration between professionals and students, in interviews with female high school students with disabilities, Hogansen, Powers, Geenen, Gil-Kashiwabara, and Powers (2008) discovered that although many students knew what an IEP meeting was, few knew the purpose of the meetings, some remarked they were pointless, some students were discouraged from attending, and some students were not allowed to attend. Moreover, it has been suggested that the time and resources needed to train school personnel in effective transition assessment is scarce at best (Leconte, 2006). That is why it is particularly important that students with disabilities learn to act as self-advocates, so they can take a primary role in transition planning and assessment and work toward a positive outcome in postsecondary settings.

### **The Current State of Students with Learning Disabilities in Postsecondary Settings**

The majority of research examining postsecondary outcomes for students with learning disabilities has focused on measuring their success in university settings. This emphasis may be due to the increasing number of students with learning disabilities attending postsecondary education. Factors contributing to this increase may be associated with greater knowledge of



student rights and educational options due to recent federal legislation, increased use of assistive technologies at the university level, and more active recruiting of students with disabilities on the part of universities and colleges (Rath & Royer, 2002; Sparks & Lovett, 2009). However, despite the reported increase in students attending postsecondary education, the proportion of students with learning disabilities attending postsecondary educational settings is still far below that of the general population, with an estimated 11% of youth attending postsecondary education as of 2008 identifying as having a disability, approximately one-third of whom report a specific learning disability (Marklein, 2011; Murray, Wren & Keys, 2008). Therefore, it is essential to examine how students with learning disabilities are functioning once in the university setting, what variables may serve as protective factors for perseverance in postsecondary education, and what factors may be barriers for continuance in postsecondary education for individuals with learning disabilities.

**Challenges for individuals with disabilities in the university setting.** Once in the university setting, students with disabilities face a number of hurdles to overcome in order to be successful. As Sparks and Lovett (2009) report, due to the varying definitions of learning disabilities used by different institutions, some students who were classified under IDEA in high school will no longer be eligible for services under ADA in college. In addition, students with learning disabilities are less likely than their non-disabled peers to have taken college preparatory classes, are often not guided to specific college programs that will help them succeed in college, may experience difficulties with social integration in college, and often struggle to find support outside of their family unit, from whom they are often separated from in college (DaDeppo, 2009; Sparks & Lovett, 2009; Wittenberg & Maag, 2002).

**Stigmatization of the use of services and accommodations.** Once in the university settings, students with learning disabilities may feel alienated from peers or discriminated against by professors as a result of their identification as students with a learning disability and/or use of accommodations or other disability services. A number of studies have examined the stigmatization of students with learning disabilities by teachers and peers in higher education. One theme that emerges from this literature is the perception that professors and peers will judge students with learning disabilities as cheating or trying to get out of work if they use accommodations (Field, Sarver & Shaw, 2003; Hill, 1994; Stodden & Zucker, 2004). These accommodations, aside from being legally mandated, are meant to ease the burden of seemingly overwhelmingly large amounts of work for students with disabilities. However, the fear of being labeled as “a cheater” can lead students to not use their accommodations, thus resulting in an increase in their already heavy workload (Lock & Layton, 2001). Therefore, students with disabilities might not identify themselves as having a learning disability due to fear of invoking stigmas related to students with learning disabilities in higher education.

Students in studies examining this issue reported being discriminated against and harassed after self-identifying (Barga, 1996). Students often report feeling fear of being perceived as “stupid”, “not intelligent”, “not quite on the ball”, and “weird” (Denhart, 2008, p. 491). Students even report being told by faculty that they should not be taking certain classes if they have a learning disability (Denhart, 2008). Lastly, although students with disabilities report working hard, often harder than their non-learning disabled peers, they report that they are not seen as the “ideal” college student once they self-identify (Denhart, 2008, p. 491). As such, students with disabilities may try to conceal their disability, thus not receiving legally mandated accommodations that are meant to ease their workload and improve their achievement at college.

As such, students with disabilities may feel overwhelmed by the demands of postsecondary education without the use of accommodations or services, which may have a detrimental effect on their perseverance in postsecondary education. The above findings once again highlight the importance of students with learning disabilities self-identifying at the university level and obtaining accommodations, as well as the need for a strong social support group.

**Identification as an Individual with a Learning Disability.** Despite the stigmatization sometimes felt by youth with learning disabilities in postsecondary settings, there is evidence to suggest that these youth are working through the issues of identifying as youth with learning disabilities and sometimes even collaborating with one another to create an environment in which other youth with learning disabilities can be accepted and can benefit from mutual experience. Higgins and colleagues (2002) followed a group of individuals with learning disabilities for 20 years to determine the stages of acceptance of a learning disability and gain insight into the impact of being labeled as such. The authors identified five stages: awareness of differentness, labeling, understanding/negotiating the label, compartmentalization, and transformation. The researchers note that not all individuals progress through these stages at the same time, but that these themes were consistent across participants. They stress that the acceptance phase is centered around the individual accepting themselves as opposed to a social acceptance; however, acceptance by other individuals with learning disabilities is also crucial.

A number of these themes emerge in the books written by Mooney and Cole (2000) as well as the work by Rodis, Garrod, and Boscardin (2001) that chronicle the experiences of individuals with learning disabilities throughout life. One contributor noted that her learning disability was “like a bubble” in that she was able to be unaware of it at times, whereas another

stated that their learning disability “significantly affected [him] in many ways, including...academic performance, interests, and personal relations” (Rodis, Garrod, & Boscardin, 2001. pp. 18 and 54 respectively). The contributors to the books discuss a number of frustrations when dealing with authorities such as teachers or employers. They note that teachers underestimated their abilities, did not show a willingness to work with them on an individualized basis, or sometimes even refused to provide them with accommodations (Mooney & Cole, 2000; Rodis, Garrod, & Boscardin, 2001). One contributor discusses a job she once had in which she took great pride, until she was asked to complete a task with her employer that required reading. Upon being unable to complete the task, she reports that her employer chastised her and until she “learned helplessness” (Rodis, Garrod, & Boscardin, 2001, pp. 25). She states, “My self-efficacy, my belief about my competence, fell into the category of failure-accepting. I expected to fail, so I set no goals, believing my ability was set” (Rodis, Garrod, & Boscardin, 2001, pp. 25). Through these stories and more, the authors and contributors highlight the ways in which youth with learning disabilities are misunderstood, underserved, and not accepted by many.

However, the authors of these compilations of stories discuss coming to a point in their lives and education when they realize that the ways in which they’ve been treated unfairly are not reasons to quit, but rather reasons to find ways to succeed. One contributor describes that once they realized the “institutional” nature of education, that it lead them to be proactive and to develop compensatory skills. He states, “in the end, the biggest challenge for us was not overcoming our weakness as LD/ADHD thinkers but transcending the biases and oppression of the institution of education” (Mooney & Cole, 2000, pp. 63). They discuss a certain empowerment from that realization and how “...we stopped allowing the institution of education to define us. We took control of our education by embracing our cognitive differences,

embracing the alternative ways to learn, and not feeling ashamed of ourselves anymore” (Mooney & Cole, 2000, pp. 21). In such a way, youth with learning disabilities can learn to function successfully as an individual with a disability; however, this label does not have to define them or limit them in terms of what they can achieve. The authors go on to say, “After arriving at Brown (proving all the experts wrong), we came to learn that we are not inherently defective and that our stories were not the narrative of some cognitive lepers but rather case studies in a much broader struggle that consumes all of us” (Mooney & Cole, 2000, pp. 20). Mooney and Cole (2000) devote a large section of their book to practical strategies that youth with learning disabilities can use, based on their own experience as students with disabilities, to succeed in education.

**Post-school outcomes for individuals with learning disabilities.** Given the realities and presence of the myriad challenges faced by students with learning disabilities in postsecondary educational settings, it is perhaps not surprising that researchers have discovered less than optimal outcomes for this population. Rath and Royer (2002) report a lower rate of college graduation for students with learning disabilities (24%) when compared to their non-disabled peers (43%). When examining a sample of individuals with learning disabilities four years after high school graduation, they found that although students with learning disabilities were less likely to earn an Associate’s or Bachelor’s degree than their non-disabled peers, they were more likely to have earned a certificate of advanced study (Rath & Royer, 2002). Johnson, Zascavage and Gerber (2008) explored the success of students with learning disabilities who attended 4-year colleges or universities directly after high school compared to students with learning disabilities who first attended a 2-year or community college. Although the researchers reported no statistically significant differences in the college GPAs of these students at the 4-year

university level, they did report significant differences in college graduation rate. Students with learning disabilities who first attended a 2-year or community college had a graduation rate of 50%, whereas their peers with learning disabilities who enrolled in 4-year universities directly after high school had a graduation rate of 26.5% (Johnson, Zascavage & Gerber, 2008). These findings stress the importance of the transition process for students with learning disabilities, particularly the role of the student in the process and the development of self-determination and self-advocacy skills.

**Protective factors for post-school success.** The extant research on students with learning disabilities in postsecondary educational settings also highlights a number of factors that can help bring about positive outcomes for this population. A number of family factors are mentioned, including above average parental expectations, positive early relationships, and high levels of involvement in the student's career and transition planning (Lindstrom, Doren, Metheny, Johnson & Zane, 2007). These same researchers highlight the importance of school-based professionals in promoting positive outcomes, particularly for those students who do not have a high level of parental involvement in the transition planning process. In a different study, Murray and Wren (2003) report that students with learning disabilities who graduated from college compared to those who dropped out of college were more likely to have had tutors earlier in life, enrolled in more English classes in high school, and were less likely to have been placed in self-contained classrooms earlier in their education. Additionally, these researchers reported that youth with learning disabilities who reported higher levels of teacher acceptance tended to have higher GPAs.

As mentioned previously, Johnson, Zascavage, and Gerber (2008) reported higher graduation rates from 4-year colleges or universities for students with learning disabilities who

first attended a 2-year or community college. Community colleges offer a number of advantages for students with learning disabilities including links with the community, more policies on assistive technology, and developmental and remedial instruction. In addition, Johnson and colleagues argued that first attending a community or 2-year college could help improve a student's self-esteem, foster a pattern of success, and increase the student's locus of control, thus raising the likelihood that the student will succeed at a 4-year college or university level. Across the literature base, themes emerge consistently that suggest that students with learning disabilities may be more likely to persevere in postsecondary education if they are involved in or play a leadership role in their transition planning, if they can demonstrate strong self-determination and self-advocacy skills, and if they are able to develop positive relationships.

As was previously discussed, youth with learning disabilities tend to have more social problems than their non-learning disabled peers. However, a body of research suggests that *social support* can serve as a protective factor for youth with learning disabilities. In a qualitative, longitudinal study, Goldberg and colleagues (2003) found that social support was a strong predictor in the success of individuals with learning disabilities. Specifically, the themes of social networks aimed at supporting their career, higher involvement in the community, support in the form of mentors or significant others, and good relationships and social activity as coping mechanisms, emerged as predictors of success for individuals with learning disabilities. In another study, Tilly (2012) conducted focus groups with individuals with learning disabilities to examine the benefits of social support. She found that most individuals with learning disabilities reported having few close friends and that many of their friends were also individuals with learning disabilities. Participants noted the importance of having friends to whom they could turn in times of difficulty and support them. Similarly, Thien and Razak (2013) examined

the aspect of friendship quality and its role in life quality for students with learning disabilities. Friendship quality was defined by the factors of closeness, help, acceptance, and safety. In this study, they found that friendship quality was a significant predictor in the students' quality of school life. In an additional qualitative study regarding compensation strategies for youth with learning disabilities, Reis and colleagues (2000) found that youth with learning disabilities often mentioned friendships and social support as a compensatory strategy for succeeding in school. Over and above the social role of friendship, these youth indicated that having someone available to share notes, discuss class concepts, and have conversations about class readings facilitated success in school for youth with learning disabilities. Additionally, Mooney and Cole (2000) discuss a number of strategies for youth with learning disabilities in postsecondary education based on their own experiences. One of the major recommendations from these authors is for youth to create cells of support for themselves. Thus, although youth with learning disabilities may have more social problems than their non-learning disabled peers, this research suggests that having one or a small group of close friends to whom one can turn when needed is an important factor in success.

**Employment outcomes.** It is also important to examine the outcomes of students with learning disabilities as a significant proportion of students with learning disabilities do not attend postsecondary education. However, fewer existing studies to-date have focused on the employment outcomes of students with learning disabilities. Just as researchers have reported an underrepresentation of individuals with learning disabilities in university settings, similar statistics have been reported for individuals with learning disabilities in the workforce. As recently as 2004, only 35% of adults with learning disabilities reported working full- or part-time, and these adults were three times more likely than the non-learning disabled population to



report an annual income of less than \$15,000 (Madaus, Zhao & Ruban, 2008). Madaus and colleagues (2008) examined the state of adults with learning disabilities in the workforce and their use of accommodations. The researchers found that the majority of adults with learning disabilities who were employed were unaware of the laws that impact their rights in the workplace (i.e., ADA). In addition, in the sample of adults with a combination of disability types, only 16% of adults identified themselves as having a disability within 2 years; this number decreased to 4% when examining adults with learning disabilities. The authors note that disclosure often comes only after the employee has experienced a problem, subsequently hindering their relationship with their employer. Although Madaus and colleagues report that employers expect employees with disabilities to be aware of the laws regarding their rights, and to take the lead in obtaining any required accommodations, the authors also note that employers need more training on learning disabilities to understand exactly what a learning disability is and how it impacts performance.

In an additional study, Madaus, Zhao and Ruban (2008) explored the employment satisfaction of students with learning disabilities who were university graduates. Similar to the aforementioned study, these researchers found that less than 10% of adults with learning disabilities had requested accommodations in the workplace. Despite this low rate of disclosure, 73% of the adults reported that their learning disability impacted their work. Amongst the most commonly reported areas that were affected included writing, processing information, and reading comprehension. However, these adults still reported high levels of job satisfaction.

The majority of research related to students with learning disabilities transitioning into postsecondary settings has focused on the transition process, and not the outcomes of transition. Given the difficult nature of longitudinal studies, this is not surprising. However, with

disparaging statistics regarding employment rates and use of workplace accommodations of adults with learning disabilities, it is essential to examine postsecondary outcomes as well as the transition process itself. In addition, all of the aforementioned studies that examined postsecondary education outcomes for students with disabilities utilized a sample of students already enrolled in postsecondary educational settings. As a result, the findings reported in these studies suffer from sampling bias in that they neglect the significant proportion of students with disabilities who either do not attend postsecondary education or who drop out of high school. Therefore, a more comprehensive examination is necessary to identify which factors are critical for student success that includes students who continue in education after high school, those who stop with a high school degree, and those who drop out of high school. Data available from the National Longitudinal Transition Study-2 has helped make exploration of these outcomes, paired with information about each individual's transition process, possible.

### **The Original National Longitudinal Transition Study (NLTS)**

The National Longitudinal Transition Study (NLTS) began in 1985. It was a six-year longitudinal study that examined the state of youth with disabilities who were in special education, ages 13-21 (grades 7 and above) during the 1985-1986 school year. Data were collected in two waves from 1985-1990. As with NLTS2, the sampling plan was developed to ensure national representativeness and was stratified by region, size, and community wealth. In total, 303 school districts and 22 special schools were recruited and agreed to participate in the NLTS. This resulted in a total, unweighted sample of approximately 10,370 students with disabilities (Newman et al., 2010).

During the first wave of data collection in the original NLTS, parents participated in telephone interviews, principals completed school background surveys, and researchers obtained

information from school records. During the second wave of data collection, parents and/or youth participated in telephone interviews, school staff completed school program surveys, principals completed schools background surveys, and researchers obtained students' high school transcripts (Newman et al., 2010).

### **Results from the NLTS**

A number of reports are available regarding the results from the National Longitudinal Transition Study. One report of particular interest (discussed in the NLTS2 section) compares the postsecondary outcomes of youth with disabilities from the NLTS and the NLTS2 to see if changes occurred over time (Newman et al., 2010). However, similar to NLTS2, there are few published articles in peer-reviewed journals that explore the findings from the NLTS; and none of these articles focus exclusively on youth with learning disabilities.

One published article by Blackorby and Wagner (1996) examines the postschool outcomes of youth with all disabilities utilizing NLTS data, comparing those results to the general population. Specifically, the authors explore the employment, postsecondary education, and independence outcomes for youth with disabilities in their first 5 years after leaving high school. Results indicate that although youth with disabilities lag behind individuals from the general population in terms of obtaining employment after high school, these results do not hold true for two disability categories: learning disabilities and speech impairments. The rate at which these individuals gained employment was very similar to the general population. Wages were commensurate with individuals from the general population who had not attended college and showed wage increases proportionate to inflation. In terms of postsecondary education, however, youth with disabilities lagged significantly behind the general population as of two years post-high school (14% youth with disabilities enrolled vs. 53% general population enrolled).

Although the authors report an increase in enrollment percentages for youth with disabilities after those two years, they note that this pattern does not hold true for youth with learning disabilities. The authors report that there is a gap in the percentage of youth with disabilities who are living independently 2 years after secondary when compared to the general population two years after secondary school; this gap persists 3 years later.

A number of articles were also published that examine the outcomes for youth with emotional disturbance. The first article by Wagner (1995) focused on the outcomes for youth with severe emotional disturbances in both secondary school and early adulthood. Overall, Wagner (1995) found that youth with severe emotional disturbances had poorer grades, the highest failure rates, and low social integration when compared to youth from other disability categories. Fewer than half of all youth with severe emotional disturbances left high school with a diploma. In terms of postschool outcomes such as postsecondary education, employment, and social outcomes, Wagner (1995) reported that youth with severe emotional disturbances lagged behind peers in the general population.

In a final article, Rylance (1997) focused on what factors predict graduating from or dropping out of high school for youth with severe emotional disturbances, discovering that nearly half of all youth with severe emotional disturbances dropped out of high school. Additionally, results suggested that school-based counseling and vocational education significantly predicted high school graduation. Further, Rylance investigated the predictors of postsecondary employment for youth with severe emotional disturbances. Rylance found that the most significant predictors of postsecondary employment for this population were vocational education, counseling, and high school graduation.

A number of additional reports were published that utilized NLTS data. Some reports focused on variables of particular interest to the current study, such as postsecondary education, employment, and family and social involvement for youth with disabilities. For example, Camille and D'Amico (1992) found that more youth with disabilities dropped out of secondary school than youth in the general population and that fewer of those youth with disabilities who dropped out completed GEDs. Ayers (1994) stated that youth with learning disabilities were the second least likely disability category to complete secondary school, second only to youth with severe emotional disturbances. Wagner and colleagues (1991) reported that vocational education, access to tutoring, and personal counseling predicted lower probabilities of dropping out. Once youth with disabilities were out of secondary school, they were less likely to attend postsecondary school or have paying jobs than youth in the general population (Camille & D'Amico, 1992). Furthermore, a number of reports also examined family involvement and social involvement for youth with disabilities. Wagner and colleagues (1992) found that the longer youth with disabilities were out of secondary schools, the less frequent their family and social interactions became. Wagner (1991) reported that 14% of youth with disabilities were socially isolated and stated that this was more common among youth with lower functioning and females. Wagner (1991) also reported that males with disabilities were more likely to see their friends often.

### **National Longitudinal Transition Study-2 (NLTS-2)**

The National Longitudinal Transition Study-2 (NLTS-2) was a 10-year study that built upon the original NLTS and collected information from multiple sources in an attempt to gain a nationally-representative assessment of the experiences and outcomes of youth who are in the transition into adulthood. Data collected include information about the characteristics of students

in special education in secondary school and their families and the experiences that those youth have had in their schools, related services, and extracurricular activities. In addition, the study focused on outcome variables of those youth, including education, employment, and social factors, and the experiences of the youth therein. The study anticipated identifying factors that may lead to more positive outcomes for these youths. Two of the most notable differences from the NLTS to the NLTS2 are the three additional waves of data collected during the NLTS2 and the addition of standardized measures of achievement in the Direct Assessment.

**Methodology of the NLTS-2.** The NLTS-2 is a nationally-representative sample of youth with disabilities and their characteristics and experiences as they transition from secondary school to early adulthood. The study consists of four waves of data collection over 10 years. Data were collected from multiple sources, including the youth, parents or caregivers, teachers, principals, and school records. Data consisted of telephone interviews with youth and parents/guardians, teacher surveys, direct assessments of youth, and review of youths' transcripts. The first wave of data collection began in 2000, and included youth (ages 13 to 16) eligible for receiving special education services. The last wave of data collection was collected during the 2009-2010 academic year; the oldest youth participating in data collection at this time was 26 years of age.

A major goal of the NLTS-2 was to create a database that would be nationally representative of America's youth with disabilities including their characteristics, programs, and outcomes. Therefore, the NLTS-2 sampling plan was created in order to ensure this goal was met. The NLTS-2 sampling plan began by sampling Local Education Agencies (LEA) and state-supported schools from which students who were receiving special education services could be selected. LEA thereby became the primary sampling unit and students became the secondary

sampling unit. LEAs and special schools were then stratified by geographic region, district enrollment, and district/community wealth in order to ensure representativeness. It was determined that in order to reach sufficient power for the data collection period, taking into account assumptions regarding attrition, a sample of approximately 11,500 students and 497 LEAs would be needed to ensure national representativeness.

### **NLTS-2 Literature Review**

Despite the broad scope of information collected from the NLTS-2, very little research from the study has been published to date using the NTLS2 data in peer-reviewed journals. The majority of published research focuses on youth with emotional disturbances. However, myriad reports, fact sheets, and data briefs have been published on the NLTS-2 website using NLTS-2 data (<http://NLTS-2.org/products.html>). In the following review of extant literature related to the NLTS-2, I will first review the studies that have been published in peer-reviewed journals with NLTS-2 data, and will then review those reports published on the NLTS-2's website.

To date, ten studies have been published in peer-reviewed journals that utilized the data from the National Longitudinal Transition Study-2 to examine the current state of transition for youth with disabilities. The majority of these studies focus exclusively on youth with Emotional Disturbances (ED; Wagner, Kutash, Duchnowski & Epstein, 2005; Wagner, Kutash, Duchnowski, Epstein & Sumi, 2005; Wagner & Davis, 2006; Wagner et al., 2006), with a number of additional articles focusing on youth with visual impairments (Freeland, Emerson, Curtis & Fogarty, 2010; Kirchner & Smith, 2005; McDonnall, 2011).

Although these studies have not focused specifically on students with learning disabilities, a number have focused on variables that are of interest to the current study. When examining the age of identification and the start of service delivery of students with ED, Wagner

and Kutash (2005) found an average of a two-year gap in the age of service delivery. Both Wagner and Davis (2006) and Katsiyannis and colleagues (2005) note the low level of compliance with federal mandates that transition planning begin at age 16 for all students with disabilities. By the age of 16, Wagner and Davis (2006) report that only 79.6% of students with ED had transition plans in effect according to parent report; Katsiyannis and colleagues (2005) report that 60% of students with mental retardation had begun the transition process by the age of 14. In terms of the transition process itself, Wagner and Davis (2006) state that few students with ED were reported to have taken a leadership role in the transition process. This may be partly attributable to a finding from Shogren and Plotner (2012), which reported that teachers often feel ill-equipped to prepare students with learning disabilities and ED for IEP meetings. Lastly, when examining individuals with visual impairment, McDonnall (2011) found that the following variables held predictive value for employment: early and recent work experiences, completion of a postsecondary program, difficulty with transportation, independent travel skills, and social skills.

### **Additional Research Utilizing NLTS-2 Data**

In addition to the aforementioned studies that appeared in peer-reviewed journals, a number of articles are available on the NLTS-2 Website (<http://NLTS-2.org/products.html>). These articles come mostly in the form of reports, fact sheets, data briefs, and newsletters. Like the majority of peer-reviewed articles, these articles utilize the NLTS-2 data to describe the experiences and characteristics of students with disabilities. In addition to examining the characteristics of subsets of students with disabilities, a number of these studies explore variables of interest for the proposed study including outcomes for students with disabilities, transition planning services, self-determination, and family involvement characteristics.



A number of reports focus on the postsecondary outcomes of students with disabilities. Gonzalez (2005) found that students with learning disabilities, the largest disability category, had an overall high school graduation rate of 75%. This statistic, however, is discrepant from the graduation rate for students with learning disabilities provided in the 28<sup>th</sup> Report to Congress of 59.6% (U.S. Department of Education, 2006). A number of negative outcomes are associated with students with disabilities who drop out of high school. Of the youth that graduate high school, about 30% of youth with disabilities attend postsecondary education, most commonly enrolling in 2-year or community colleges (Wagner et Al., 2005). However, the majority of these students does not self-identify as having a disability once at college, and therefore receive no accommodations (Wagner et. al, 2005). An additional 54% of youth with disabilities are employed in regular paid jobs one year after leaving high school (Wagner, Cameto & Newman, 2003). Once again, though, hardly any of these youth with disabilities (4%) are receiving accommodations at work largely because they have not self-identified as an individual with a disability (Wagner et. al., 2005).

A number of the NLTS2 reports published online examine variables that are of interest to the current study, though do not focus exclusively on students with learning disabilities. Newman and colleagues (2011) examined the postsecondary outcomes for individuals with disabilities up to 8 years after high school. Overall, they found that 60% of youth with disabilities reported having attended postsecondary education within eight years of leaving high school. As has been reported in previous studies, youth with disabilities reported higher attendance rates in 2-year/community colleges than 4-year colleges or universities. In terms of self-identification to postsecondary settings, 63% of students who had been identified by their secondary institution as having a disability reported that they no longer felt they had a disability

at the time of transition; thus, only 28% of students reported informing their postsecondary educational institution. Similarly, whereas 87% of students in the sample reported receiving accommodations or support due to a disability in secondary school, that percentage drops to 19% in the postsecondary setting. When looking at youth with disabilities in the workforce, only 7% reported receiving some type of accommodation.

Family involvement plays a crucial role in students' success. Newman (2005) found that almost all families of students with disabilities report participating in at least one school-based activity such as parent-teacher conferences, school or class events, or general school meetings. Furthermore, most families of students with disabilities report being involved with the student's education at home, including talking with their child about school and helping with homework.

A report on the self-determination of students with disabilities found that the majority of youth rate themselves in the medium to high range in regards to personal autonomy, autonomy in career planning, self-realization, and psychological empowerment (SRI International, 2005). However, there are differences in scores based on disability category. Youth with learning disabilities, speech impairments and visual impairments were more likely to rate themselves highly, whereas youth with Autism or multiple disabilities were more likely to rate themselves poorly (SRI International, 2005). In addition, those youth who reported high levels of self-determination were more likely to be actively engaged in their transition planning process (SRI International, 2005).

Cameto, Levine and Wagner (2004) focused on the transition planning process itself. They report that the average age at which students with disabilities begin to receive transition planning is 14.4 years, and that student participation increases with age. Students are reported to be actively involved in transition planning approximately 70% of the time. In addition, parents

are reported to be involved in the process 85% of the time. The majority of students with disabilities have transition services and goals related to postsecondary settings. The most common goal for students with disabilities is postsecondary education, followed by competitive employment. Although school staff reported that most students' services are well-suited to help the students meet their goals, school staff reported that almost 20% of students have services and programs in place that are only 'somewhat' well-suited or 'not at all' well-suited to help students meet their goals.

Newman and colleagues (2010) compared the postsecondary outcomes of youth with disabilities utilizing data from the original NLTS and the NLTS2 to determine if those outcomes are changing over time. In terms of postsecondary education, the authors note that the percentage of youth with disabilities enrolled in college within 4 years of leaving high school has increased from 26% to 46%. Although this finding wasn't consistent across disability categories, students with specific learning disabilities demonstrated one of the highest increases in postsecondary education enrollment rate. In contrast, the authors discovered that employment rates did not vary for youth with disabilities from the original NLTS to the NLTS2. The authors noted similar rates of employment, job duration, hours employed per week, type of job, and average wage across the two time periods (Newman et al., 2010).

### **Limitations of the Existing Research**

Although the above studies provide a starting point for understanding the current state of students with learning disabilities in postsecondary settings, there are a number of limitations associated with the extant literature. Despite available longitudinal data such as the NLTS-2, studies that have examined individuals with learning disabilities in postsecondary settings have focused exclusively on those students who are already enrolled in college. These studies,

therefore, neglect a significant proportion of the population who do not enroll in postsecondary education. It is essential to understand how these individuals are performing after secondary education in the myriad settings in which they operate. It is also crucial to examine the segment of the population who enroll but who do not persevere in postsecondary education. Similarly, the majority of studies have focused on individuals enrolled in 4-year colleges or universities, thus severely limiting the generalizability of the results given the number of students with learning disabilities who enroll in 2-year or community colleges. Further research is needed that can provide a fuller understanding of individuals with learning disabilities in all postsecondary settings.

There are a number of limitations to the research that has been disseminated utilizing the NLTS-2. For example, the reports published on the NLTS-2 website were compiled by researchers working with SRI International, the company responsible for data management and analysis of NLTS-2 data. Given this, and the fact that these reports were made available through the NLTS-2 website, they did not have to undergo the rigorous process of peer-review in order to be published. Largely, there remains a lack of examination of the NLTS-2 data by independent researchers. The research that has been published utilizing the NLTS-2 has focused mainly on students with ED or visual impairments, thus neglecting the largest disability category: learning disabilities.

Moreover, despite the inherent advantages of the design of the NLTS-2, there are also limitations associated with the data. The majority of the data collected for the NLTS-2 (all but the Direct Assessment) is self-report. As with all survey data, respondents may suffer with recall, demonstrate a lack of knowledge of the things being asked, attempt to present oneself in a

favorable manner, and/or demonstrate a lack of understanding (Ederer, 2004). Therefore, it is possible that the responses provided are not an accurate representation of the variables measured.

In addition, the grand scope of NLTS-2 may actually be a limitation to the study. A major goal of NLTS-2 was to capture a broad national picture of the transition of youth with disabilities from high school to postsecondary settings. This broad focus and large number of participants limited the degree to which the researchers could go into detail about any one given aspect, such as student and parent expectations or transition services. Given that NLTS-2 was a longitudinal study, the selected measures were not extensive in an effort minimize participant attrition. Because the analyses in the present study were completed using secondary data obtained from the U.S. Department of Education, the experimenter had no control over the questions asked or the manner in which the data were collected. The large number of respondents potentially served as a limitation to the analyses, in that this might lead to small effects being statistically significant.

Lastly, NLTS-2 respondents were limited to those students receiving special education services in the year 2000, when data collection began. Therefore, generalizability is limited to that population. Also, while the study did include a variable to indicate if the student was declassified and therefore no longer receiving special education services (and, therefore, no longer diagnosed with a learning disability), these declassified students were still included in the data collection and analyses. Hence, it is possible that a number of participants in the current study were not receiving special education services, and thus were not eligible for transition services.

### **Purpose of the Present Study**

The purpose of the proposed study is to investigate the postsecondary outcomes of students with learning disabilities and to examine which variables best predict increased postsecondary education for these students. Although the annual reports to Congress and a number of published studies (DaDeppo, 2009; Sparks & Lovett, 2009; Wittenberg & Maag, 2002) provide a snapshot of the current state of students with learning disabilities, no study to date utilizes longitudinal data to examine which pre- and post-secondary variables may predict postsecondary education success. The proposed study will add to the existing research by employing regression as statistical analyses to evaluate which variables predict increased postsecondary education among youth with learning disabilities. Given previous research regarding best transition practices and postsecondary outcomes (Clark & Artiles, 2000; Eckes & Ochoa, 2005; Field, n.d.; Field & Hoffman, 2007; Gil, 2007; Kochhar-Bryant & Izzo, 2006; Leconte, 2006; Madaus, 2005; Test, Fowler, Wood, Brewer, & Eddy, 2005), it is hypothesized that postsecondary education will increase based on demographic variables, youth achievement, disability status variables, effective components of transition, and student characteristics.

In addition, a secondary aim of the proposed study is to examine the postsecondary outcomes of youth with learning disabilities. A number of studies have explored outcomes of students with disabilities in general using NLTS-2 data (Wagner, Cameto & Newman, 2003; Wagner et al., 2005; Wagner et al., 2006), but no study has examined specifically the postsecondary outcomes of youth with learning disabilities. Although the 28<sup>th</sup> Report to Congress provides information on the graduation and drop-out rate for students with learning disabilities, a more comprehensive understanding of postsecondary outcomes for youth with learning disabilities is essential in order to shape transition planning services to maximize

postsecondary success. Thus, the proposed study will analyze the postsecondary outcomes of youth with learning disabilities, including postsecondary education, employment, and independent living variables.

## **Method**

### **Participants**

Data from the NLTS2 was obtained by researchers at Syracuse through an application process. An application was submitted to the Institute of Education Sciences (IES), the organization in charge of maintaining the databases. Individuals included in the analyses were those identified as having a Learning Disability by their respective school district. The unweighted sample contained a total of 550 respondents. However, after weighting the sample to ensure national representativeness, the resulting initial total sample contained 435,437 respondents (see the Weighting section of the Data Analytic Procedures for further information).

**Youth demographic characteristics.** The sample contained a total of 435,437 participants. More respondents were males (59.6%) than females (40.4%). The majority of respondents self-identified their race/ethnicity as White (66.3%). A smaller percentage of participants self-identified their race as African American (18.3%), Hispanic (6.4%), Other (5.6%), American Indian or Alaskan Native (2.8%), Asian (> 0.1%), and Native Hawaiian/Other Pacific Islander (> 0.1%). Statistically significant differences among participants were found for ethnicity,  $X^2(5, N = 435,437) = 10,962.56, p > .01$ . The highest percentage of participants identified having a family income of more than \$50,000 (38.6%), followed by \$25,001 - \$50,000 (32.8%), and lastly less than \$25,000 (28.4%). There was not a significant difference in the representation of income categories across the sample  $X^2(2, N = 435,437) = 4.45, p < .01$ . The

age range of participants was 19 to 23 years ( $M = 21.13$  years). Table 1 presents the demographic characteristics of the sample of respondents, including the unweighted sample size.

**Parent respondent characteristics.** Information on the gender and ethnicity of parent respondents are available through the NLTS-2 website ([http://www.nlts2.org/data\\_tables/index.html](http://www.nlts2.org/data_tables/index.html)). According to the data tables made publically available, the overwhelming majority of parent respondents were female (87.8%). Of the parent respondents who identified their ethnicity as White, 86.9% identified as female. Of the parent respondents who identified their ethnicity as African America, 90.8% identified as female. Of the parent respondents who identified their ethnicity as Hispanic, 88.2% identified as female. Lastly, of the parent respondents who identified their ethnicity as Other, 83.6% identified as female.

## **Materials**

**Respondent interviews.** All interviews were conducted over the telephone with the use of Computer-Assisted Telephone Interviewing (CATI). CATI allowed the interviewer to ask the respondent only those questions that are appropriate for the youth's age, disability, or other circumstances, and allowed the interviewer to easily skip items or sections that are not relevant to that particular youth. Parent interviews (see Appendix B) began with a screening section to identify the parent/guardian who would be best to speak to about the youth, and to determine the parent/guardian's English language proficiency. If the parent/guardian was determined to be a Spanish-speaker, then the Spanish language version of the interview was administered. The average Parent telephone interview lasted 40 minutes. A simplified paper-based version of the survey was available to be mailed to the homes of those families without a telephone.

Parents were asked during the Parent Telephone Interview of year 3 if the youth would be able to answer similar questions about his/her experiences on his/her own. If the parent



responded affirmatively, then the youth was contacted for the Youth Telephone Interview (see Appendix C) during year 3 of data collection. CATI was also used with the Youth Telephone Interview, as was the initial screening to determine English language status. The Youth Telephone Interview was also available in Spanish. The average duration of the Youth Telephone Interview was 35 minutes. A simplified paper-based version of the survey was available to youth without a telephone or those who were hearing impaired.

**Direct assessment of youths' competencies.** Direct assessment (see Appendix D) of each youth's skills and attitudes was obtained during years 2 and 4. Direct assessment for those youth who were 16 and 18 years of age during year 2 was collected at that time, whereas direct assessment for those youth who were 14 or 15 years of age was collected during year 4. Direct assessment was completed by trained on-site professionals other than the student's teacher. Youth were assessed in the areas of Reading, Mathematics, Aptitude, Self-Concept, and Attitude toward School. The measures used to collect this information included the Woodcock-Johnson Research Edition – Letter-Word Identification (Woodcock, McGrew & Mather, 2001), the Woodcock-Johnson Research Edition – Passage Comprehension (Woodcock et al., 2001), the Woodcock-Johnson Research Edition – Applied Problems (Woodcock et al., 2001), the Woodcock-Johnson Research Edition – Calculation (Woodcock et al., 2001), the Woodcock-Johnson Research Edition – composite measure of verbal and visual ability (Woodcock et al., 2001), portions of the Student Self-Concept Scale (Gresham, 1993) and portions of the School Attitude Measure (Wick, 1990). Brief 10 to 15 minute youth interviews were conducted at the conclusion of the Direct Assessment. In total, the Direct Assessment lasted for an average of one hour.

The reading subtests of the Woodcock Johnson Test of Achievement were administered to youth during the second wave of data collection. The scores were then converted to reflect one overall reading achievement score for each youth. The number of youth with learning disabilities who scored each possible score are reported in the NLTS-2 database (e.g., 57 youth with learning disabilities scored 19, 323 youth with learning disabilities scored 26, 256 youth with learning disabilities scored 27, etc.); therefore, scores were grouped by the scores utilized in the descriptive classifications of the Woodcock Johnson Test of Achievement in order to facilitate understanding.

The mathematics subtests of the Woodcock Johnson Test of Achievement (Applied Problems and Calculation) were also administered to youth during the second wave of data collection. The scores were then converted to reflect one overall mathematics achievement score for each youth. Again, scores were grouped by the scores utilized in the descriptive classifications of the Woodcock Johnson Test of Achievement in order to facilitate understanding.

### **Study Variables**

A list of all study variables including wave(s) of collection and by whom the variable was reported is presented in Appendix A. For the purposes of the analyses, two variables were calculated and are described below. A family involvement variable was created to reflect parent-reported involvement in the respondent's secondary education. This variable reflected a composite of four items: how often the parent/guardian reported attending general school meetings, how often the parent/guardian reported attending school or class events, how often the parent/guardian reported volunteering at the school, and how often the parent/guardian reported attending parent/teacher conferences. For each of the above questions, scores of 0 represented

“never,” scores of 1 represented “1-2 times,” scores of 2 represented “3-4 times,” scores of 3 represented “5-6 times,” and scores of 4 represent “more than 6 times” per school year. The family involvement variable was created by adding the totals of the above 4 questions; possible scores ranged from 0 to sixteen.

The self-determination variable was created and recoded to reflect respondent-reported level of self-determination. This variable reflected a composite of five items from the Student Self-Concept Scale (Gresham, 1993) designed to measure the respondent’s self-determination in: expressing one’s opinions, autonomy in decision-making, ability to get what one wants by hard work, perseverance after things go wrong, ability to make good choices, and ability to make choices that will be honored by others. For each of the original items, scores of 1 represented higher levels of self-determination, whereas scores of 2 represented lower levels of self-determination. Therefore, each item was first recoded so that higher scores reflected higher levels of self-determination. The self-determination variable was then created by adding the totals of the above 6 questions; possible scores ranged from 6 to 12.

One variable was re-coded for the purpose of the analyses. The social support variable, which asked, “I can find a friend when I need one,” was originally scaled such that responses of 1 indicated “yes,” responses of 2 indicated “no,” and responses of 3 indicated “sometimes.” The variable was recoded so that larger values would reflect a better ability to find a friend when needed. In the recoded variable, scores of 0 indicated “no,” scores of 1 indicated “sometimes,” and scores of 2 indicated “yes”. This was the only variable in the NLTS2 database that addressed whether the youth felt as though he/she had social support. Although a more thorough and in-depth measure of social support and friendships of youth with disabilities would have been more useful in the analyses to pinpoint how social support contributes to postsecondary education

perseverance, no other outcome variable was available that assessed these areas of social support.

The remainder of the variables was entered into the analysis as originally coded. These variables included: (a) gender, (b) income, (c) age of identification, (d) age the youth first received special education services, (e) reading achievement score, (f) math achievement score, (g) whether the youth received services or accommodations from postsecondary institution, and (h) the youth's role in IEP/transition planning. Gender was reported by the youth's parent/guardian. Income was also reported by parent/guardian according to the following categories: 1 = a yearly family income of \$25,000 or less, 2 = a yearly family income of \$25,001 - \$50,000, and 3 = a yearly family income of more than \$50,000. Age of identification and age the youth first received special education services were also reported by parent/guardian. Parent/guardian also reported the role that the youth took in IEP/transition planning; scores of 1 represent "youth was present/participated little," scores of 2 represent "youth provided some input," and scores of 3 represent "youth took a leadership role." Reading achievement was reported as a standardized score achieved on the standardized measure. A list of all study variables including wave(s) of collection and by whom the variable was reported is presented in Appendix A. Although previous studies have suggested the role that ethnicity can play in postsecondary education (Venezia & Kirst, 2005), this variable was not included in the current study. An ethnicity variable was purposefully omitted from analyses due to the fact that the available variable within the NLTS2 data are not reflective of best practices of racial and ethnic identification in that respondents were restricted to indicate a single category.

## Data Analytic Procedures

**Weighting.** To create a database that included all variables of interest, a single database was created that included variables from the multiple NLTS2 databases (i.e., Parent Interview, Student Interview, Direct Assessment). In order to ensure that the sample was as nationally representable as possible, the data were weighted by the weight of the smallest data set used for the composite database. Specifically, “the sample obtained for each instrument was weighted so that it accurately represents the universe of students, defined by age and disability category, from which the NLTS2 sample was selected, regardless of response rate” (Javitz & Wagner, 2005). Each individual data set from the NLTS2 (i.e., the parent interview data set, youth interview data set, direct assessment data set, etc.) has a weight assigned to each respondent within the sample. This weight was derived by multiplying the LEA sampling weight by the inverse of the student sampling fraction. For that data set, each respondent is weighted so that the data set represents the population for each disability in each of the LEA/special school stratifications (i.e., region, size, wealth) in the NLTS2 sample plan. Thus, when data sets are combined into one database to examine different variables concomitantly, it is essential to utilize the weight assigned to each respondent in the data set with the smallest sample size to ensure that all weights will indeed be representative of the larger population. In this case, the data were weighted by the weight of the direct assessment database as that represented the smallest sample size of all data sources once combined. This resulted in a sample that corrected for any overrepresentation or underrepresentation of any given stratification of geographic region, district enrollment, and district/community wealth. (For a full discussion of the NLTS2 sampling plan including weighting procedures, please see [http://www.nlts2.org/studymeth/nlts2\\_sampling\\_plan2.pdf](http://www.nlts2.org/studymeth/nlts2_sampling_plan2.pdf))

**Data inspection.** For the purposes of the analyses, prior to conducting the analysis, the data were inspected for missing values, outliers, and fit of distributions. No missing values were present in the data. The fit of distributions were inspected for the presence of outliers, skew, and kurtosis to ensure the normality assumption was met. A within-group histogram was developed for each outcome variable. Initially, the study contained three outcome variables for three separate analyses: (a) graduation from a two-year college or university, (b) graduation from a four-year college or university, and (c) number of credits earned at a two- or four-year college or university. However, a review of the data indicated that the outcome variable of “graduation from a four-year college or university” was not normally distributed (skew = 3.71; kurtosis = 11.73). Therefore, this outcome variable was omitted from the final analyses due to a violation of the assumption of normal distribution.

Review of the data indicated that the outcome variable of graduation from a two-year or four-year college or university was approximately normally distributed, with a normal skew (1.54) and a normal kurtosis (0.37). Unweighted values also revealed a normal distribution with a normal skew (1.16) and a normal kurtosis (-0.67). The outcome variable of “number of credits earned at a two- or four-year college or university” was also approximately normally distributed with a normal skew (0.66) and a normal kurtosis (-0.93). Unweighted values of this outcome variable also revealed a normal distribution with a normal skew (1.01) and a normal kurtosis (-0.18). No outliers exceeded a standardized score of 2.87 ( $p < .001$ ; Tabachnick & Fidell, 2007), resulting in all scores being included in the final data analysis.

## Results

### Descriptive Results of Outcome Variables

For the purpose of the descriptive results of the outcome variables, all youth with disabilities were included ( $N = 435,437$ ) for the outcome variables of age at which the youth was first diagnosed as having a disability, age at which youth first received special education services, postsecondary employment, hourly wages, and postsecondary education attendance. However, because the responses were to those parents who had reported that their child was enrolled/had been enrolled in a postsecondary institution *and* had reported receiving services or accommodations from their postsecondary institution, the sample of youth with disabilities is smaller ( $n = 37,373$ ) for the outcome variables of types of accommodations received at postsecondary education institution.

**Disability status.** Parents were asked to report the age at which the youth with a learning disability was first identified as having a disability. Responses in the sample ranged from birth to 14 years of age. The most commonly reported age at which the youth with a learning disability were identified as having a disability was six years of age ( $M = 6.28$ ;  $SD = 3.11$ ). Parents were also asked to report the age at which youth with learning disabilities first started receiving special education services in school. Responses ranged from 5 to 17 years of age. The most commonly reported age at which students with learning disabilities started receiving special education services was 6 years of age ( $M = 8.61$ ;  $SD = 2.61$ ). Disability status frequencies are reported in Table 2.

**Postsecondary employment.** Parents were asked to report if the youth with a learning disability currently had a paid job. Overall, parents reported that 72.5% of youth with learning disabilities currently had a paid job. Parents were also asked to report the hourly wage of the

youth with a learning disability in his/her current job. Responses in the sample ranged from 2 to 25 dollars per hour. The most commonly reported hourly wage was 7 dollars per hour; and the average hourly wage was reported at just under 9 dollars per hour ( $M = 8.81$ ;  $SD = 2.92$ ).

Postsecondary employment frequencies are reported in Table 3.

**Postsecondary education attendance and accommodations.** Parents were asked to report on the youth with a learning disability's postsecondary education attendance through a number of questions, which were then combined to form a composite postsecondary education attendance variable. Responses in the sample ranged from dropping out of high school to completing a 4-year degree. According to the parent report, the majority of youth with learning disabilities (71.2%) reported their highest level of education as "attended *some* postsecondary education" (emphasis added). A smaller percentage of youth with learning disabilities (19.9%) "attended some 4-year college or university" (19.9% of sample). Parents reported that very few youth with learning disabilities (0.5%) dropped out of high school. Frequencies of each response choice are shown in Table 4.

Parents were asked to report, of the youth with learning disabilities who are currently or have previously attended postsecondary education, if they received services or accommodations from their postsecondary institution. This limited the sample to 169,635 youth with learning disabilities. According to parent report, only 9.7% of youth with learning disabilities were receiving services or accommodations from their postsecondary institution.

Parents were also asked to report the types of services and accommodations that youth with learning disabilities were receiving from their postsecondary institution. The most commonly reported services and accommodations included testing accommodations (9.6%) and



materials technology adaptations (6.0%). The number of individuals who indicated receiving each type of accommodation is reported in Table 5.

**Student achievement.** The average standardized score for youth with learning disabilities on the Woodcock Johnson Test of Achievement reading assessment (Synonyms, Antonyms, and Passage Comprehension) fell within the low average range ( $M = 83.11$ ;  $SD = 15.93$ ). Reading scores ranged from 13.5 to 125. Grouped frequencies of reading achievement are presented in Table 6.

The average standardized score for youth with learning disabilities on the Woodcock Johnson Test of Achievement mathematics assessment (Applied Problems and Calculation) also fell within the low average range ( $M = 85.76$ ;  $SD = 15.63$ ). Mathematics scores ranged from 19 to 135.5. Grouped frequencies of mathematics achievement are presented in Table 6.

**Family involvement.** Parents were asked to report how involved they were in the education of the youth with learning disabilities for the most recent year of secondary education. Overall, parents reported low levels of family involvement. On a composite scale ranging from 0 to 16, over half of the sample (58.3%) reported values of less than 5 ( $M = 4.45$ ;  $SD = 3.18$ ). Family involvement frequencies are presented in Table 7.

**Role in IEP/Transition Planning.** Parents were asked to report the role that the youth played in their own IEP/transition planning. Responses ranged from 1, which indicated little involvement, to 3, which indicated that the youth played a leadership role. According to parent reported, the majority of youth with learning disabilities provided some input to their IEP/transition planning (50.6%), but did not play a leadership role ( $M = 1.95$ ;  $SD = .70$ ). Role in IEP/transition planning frequencies are presented in Table 7.

**Social skills.** Youth with learning disabilities were asked to indicate whether they could find a friend when they needed one. The majority of youth (73.9%) reported that they were sometimes able to find a friend when they needed one. Only a quarter of the sample (25%) reported they were able to find a friend when they needed one. A very small percentage of youth (1.7%) with learning disabilities reported that they were unable to find a friend when they needed one. Social skills frequencies are presented in Table 8.

**Self-Determination.** Youth with learning disabilities were asked to rate aspects of their self-determination as measured by the Student Self-Concept Scale in the direct assessment conducted during the second wave of data collection. Responses on this scale were converted to a composite score with possible scores ranging from 6 to 12. Overall, youth with learning disabilities self-reported very high levels of self-determination ( $M = 11.31$ ;  $SD = 1.01$ ). Self-determination frequencies are presented in Table 8.

### **Relationship between Graduation from a Two-year College or University and Demographic Variables, Student Academic Achievement, Special Education Status, Components of Transition Services, and Student Characteristics**

A logistic regression analysis was conducted to evaluate how the selected independent variables contributed to the likelihood of an individual graduating from a two-year college or university. The predictors were gender, income, reading and math achievement, age at which the youth was first identified as having a disability, age at which the youth first received special education services in school, receipt of accommodations from postsecondary institution, family involvement, role of the youth in transition and IEP planning, self-determination, and youth's ability to find a friend when he/she needs one, while the criterion variable was whether or not the

youth graduated from a two-year college or university. All variables were included in the final analysis.

Intercorrelations for all variables are presented in Table 9 and the intercorrelations above 0.30 are discussed below. The two variables with the highest correlation were mathematics and reading achievement ( $r^2 = 0.47$   $p < .001$ ). Reading achievement was also significantly correlated with income ( $r^2 = 0.42$   $p < .001$ ). The age at which the youth first received special education services was positively correlated with both age of identification as having a disability ( $r^2 = 0.36$   $p < .001$ ) and math achievement ( $r^2 = 0.35$   $p < .001$ ); however, it was negatively correlated with the age at which the individual was first identified as having a disability ( $r^2 = -0.38$   $p < .001$ ). The age at which the individual was first identified as having a disability was positively correlated with gender ( $r^2 = 0.36$   $p < .001$ ). Family involvement and self-determination were negatively correlated ( $r^2 = -0.32$   $p < .001$ ).

Logistic regression analysis was utilized to determine if the combination of predictor variables was a significant predictor of the probability of an individual with learning disabilities to graduate from a two-year college or university. Results indicated that the weighted combination of predictor variables did have an effect on the dependent variable ( $\chi^2 (8, 61,550) = 15,501.71$ ,  $p < .001$ ) Table 10 displays the logistic regression coefficients ( $B$ ), the standard errors (SE), Wald's statistic (Wald), odds ratio (Exp( $B$ )), and 95% odds ratio confidence interval (CI) for each predictor variable.

When examining the weighted odds ratios of the predictor variables in the model, few variables were observed to hold predictive value for graduating from a two-year college or university in the direction hypothesized. Odds ratios observed in the direction hypothesized include reading achievement (Exp ( $B$ ) = 1.04,  $p < .001$ ), family involvement (Exp ( $B$ ) = 1.17,  $p <$

.001), and social support ( $\text{Exp}(B) = 2.72, p < .001$ ). These results suggest that an individual was more likely to graduate from a two-year college or university if he or she had higher reading achievement scores, higher levels of family involvement were reported, and the youth reported being able to find a friend when he/she needed one.

However, the majority of variables suggested contributions in the opposite direction of what was hypothesized. Specifically, odds ratios for age of identification ( $\text{Exp}(B) = 1.59, p < .001$ ), age at which the youth first received special education services ( $\text{Exp}(B) = 1.77, p < .001$ ), gender ( $\text{Exp}(B) = .09, p < .001$ ), income ( $\text{Exp}(B) = .75, p < .001$ ), math achievement ( $\text{Exp}(B) = .82, p < .001$ ), self-determination ( $\text{Exp}(B) = .87, p < .001$ ), the role the youth played in IEP/transition planning ( $\text{Exp}(B) = .91, p < .001$ ), and accommodations from the postsecondary institution ( $\text{Exp}(B) = .04, p < .001$ ) were observed in the direction opposite of what was hypothesized. These results suggest that students were less likely to graduate from a two-year college or university if they were male, reported a higher family income, were identified earlier in life, started receiving special education services earlier in life, they reported a higher family income, their math achievement was higher, they reported higher levels of self-determination, they played more of a leadership role in IEP/transition planning, and they reported receiving accommodations from their postsecondary institution.

### **Relationship between Number of Credits at a Two-Year or Four-Year College or University and Demographic Variables, Student Academic Achievement, Special Education Status, Components of Transition Services, and Student Characteristics**

A weighted standard multiple regression analysis was conducted to evaluate how the selected independent variables contributed to the number of credits earned at a two-year or four-year college or university. The predictors were gender, income, reading and math achievement,

age at which the youth was first identified as having a disability, age at which the youth first received special education services in school, receipt of accommodations from postsecondary institution, family involvement, role of the youth in transition and IEP planning, self-determination, and youth's ability to find a friend when he/she needs one, while the criterion variable was the youth's self-reported amount of post-secondary education attendance. All variables were included in the final analysis.

Intercorrelations for all variables are presented in Table 9. Multiple regression analysis was utilized to determine if the linear combination of predictor variables was significantly related to number of credits earned at a two-year or four-year college or university. Results indicated that the multiple regression analysis was significantly different from zero ( $F(11, 85,003) = 4,509.73, p < .001$ ) and that approximately 37% of variance in number of credits earned was explained by the linear combination of predictor variables. Table 11 displays the weighted unstandardized regression coefficients ( $B$ ), the standardized regression coefficients ( $\beta$ ), the semipartial correlations ( $sr_i^2$ ),  $R^2$ , and adjusted  $R^2$ .

When examining the relative influence of the predictor variables in the model, four variables were observed to contribute relative large and significant amounts of variance in the direction hypothesized. Given the large sample size, for the purpose of these analyses, large contributions have been defined as those variables having a standardized regression coefficient ( $\beta$ ) of more than .20 (Trusty, Thompson & Petrocelli, 2004). The standardized regression coefficients of math achievement ( $\beta = .26, p < .001$ ), the role the youth played in IEP/transition planning ( $\beta = .23, p < .001$ ), social support ( $\beta = .21, p < .001$ ), and family involvement ( $\beta = .21, p < .001$ ) indicated large and significant contributions to postsecondary education. These results suggest that youth with disabilities tended to earn more credits at two- or four-year colleges or

universities if they had higher math achievement scores, reported taking more of a leadership role in their IPE/transition planning, reported being able to find a friend when they needed one, and reported higher levels of family involvement.

A number of additional variables were observed to make small but statistically significant contributions to the overall model, including gender ( $\beta = .18, p < .001$ ), income ( $\beta = .18, p < .001$ ), self-determination ( $\beta = .08, p < .001$ ), and whether the youth reported receiving services or accommodations from his/her postsecondary institution ( $\beta = .07, p < .001$ ). These results indicate that youth with disabilities tended to earn more credits at two- or four-year colleges or universities if they were female, reported a higher income level, reported higher levels of self-determination, and reported receiving accommodations from their postsecondary institution.

However, a number of the variables suggested contributions in the opposite direction of what was hypothesized. Specifically, the standardized regression coefficients indicated a large, significant contribution of the age at which the student was first identified as having a disability ( $\beta = 0.26, p < .001$ ). In addition, the reading achievement ( $\beta = -.14, p < .001$ ) and age at which the youth first started receiving special education services ( $\beta = -.02, p < .001$ ) indicated significant contributions, although small, in the opposite direction of what had been hypothesized. These results suggest that students tended to earn more credits at two- or four-year colleges or universities if they were identified later in life, scored lower on reading achievement, and started receiving special education services later in life.

The unweighted multiple regression analysis indicated similar results as the weighted analysis. The unweighted multiple regression analysis was also significantly different from zero ( $F(11, 79) = 2.86, p < .001$ ) and that approximately 32% of variance in number of credits earned was explained by the linear combination of predictor variables. Table 12 displays the

unstandardized regression coefficients ( $B$ ), the standardized regression coefficients ( $\beta$ ), the semipartial correlations ( $sr_i^2$ ),  $R^2$ , and adjusted  $R^2$  for the unweighted analysis. Due to experimenter concerns with the small, unweighted sample size, a power analysis was completed to determine what would constitute an adequate sample size for a multiple regression model with 11 predictors, an effect size of 0.15, and a power statistic of 0.95 ( $\alpha = 0.05$ ). Results of the power analysis indicated that a sample size of 107 would be required to find a statistically significant result when the null hypothesis is false. Given that the current sample contained only 80 participants, the present study was sufficiently underpowered. As such, it is not surprising the majority of variables failed to reach statistical significance.

### **Discussion**

Transition planning was developed in order to assist students with disabilities as they transition from high school to varied post-secondary environments. A number of studies have suggested that positive outcomes from successful transition includes improved decision-making and self-advocacy skills, increased post-secondary education, and increased employment wages (Kochhar-Bryant & Izzo, 2006; Malloy, Cheney, & Cormier 1998). As such, the aims of this study were to determine which variables provide predictive value for postsecondary education attendance and graduation as well as to provide a snapshot of the conditions of youth with learning disabilities (the largest disability category in the United States) after high school.

#### **Predictors of Graduation from a Two-Year College or University Education Attendance**

**Demographic variables.** Gender was a significant predictor of postsecondary education for youth with learning disabilities in the opposite direction than hypothesized. Specifically, results of this study indicated that males with learning disabilities were more likely to graduate from a two-year college or university than females with learning disabilities. This finding is

inconsistent with recent reports that females are more likely to attend postsecondary education, as well as more likely to graduate from postsecondary institutions (Goldin, Katz, & Kuziemko, 2006; Pollard, 2013). However, it should be noted that this finding is inconsistent with the additional regression analysis that was conducted and is discussed below. Additionally, the logistic regression to determine the impact of this and other predictor variables could not be completed due to violations of normality; therefore, the current study cannot speak to the possible impact of gender on graduation from a four-year college or university.

Income was also a significant predictor of postsecondary education for youth with learning disabilities in the opposite direction than hypothesized, in that individuals with learning disabilities who higher reported family incomes were less likely to graduate from a two-year college or university. This is inconsistent with previous research (Bowen, Chingos, & McPherson, 2009; Diemer & Li, 2012) that suggests that youth from families with higher income are more likely to graduate from postsecondary educational institutions. However, research has also documented the disparity of income levels when comparing youth at two-year colleges or universities as compared to youth at four-year colleges or universities (Walpole, 2003), as well as the financial benefits of attending a community college prior to attending a four-year institution (Venezia & Kirst, 2005).

**Achievement.** Reading achievement, as measured by the Woodcock Johnson Test of Achievement synonyms, antonyms, and passage comprehension subtests, predicted a significant amount of variance in the likelihood of graduating from a two-year college or university, as was hypothesized. However, math achievement as measured by the Woodcock Johnson Test of Achievement calculation and applied problems subtests predicted a significant amount of variance in the likelihood of graduating from a two-year college or university in the direction



opposite of what was hypothesized. Recent studies note that, traditionally, community colleges have focused more on liberal arts than on science, technology, and mathematics (STEM) programs, thus perhaps enabling success and graduation for youth with reading skills more than youth with math skills (Mangan, 2013; Tilsley, 2012).

**Disability status.** The logistic regression analysis revealed that youth were more likely to graduate from a two-year college or university given a higher age at which special education services began and a higher age at which the youth with learning disability was first diagnosed as having a learning disability, both opposite of what was hypothesized. As stated previously, the most commonly reported age for both of these variables was 6 years. A few possible explanations for these results could be that students who are diagnosed with a learning disability in elementary school or later as opposed to being diagnosed earlier in primary school may be benefiting from more accurate diagnoses and targeted services to remediate academic problems. Also, although diagnosed later in life, these students may also be benefitting from more general early interventions as well. With the shift toward inclusion, and goals and expectations being set that youth with learning disabilities are educated in the general education classroom as much as possible (U.S. Department of Education, 2004), these results may be an indication that youth are receiving more preventative and more effective instruction and intervention. Alternatively, these students may also be diagnosed later in life and receive services later in life due to less severe conditions.

**Transition services and effective components.** The youth's role in his/her IEP/transition planning contributed a significant amount of variance to youths' likelihood to graduate from a two-year college or university in the opposite direction as hypothesized. This finding is inconsistent with previous research that suggests that students with learning disabilities

who take a more active role in their transition planning will attend more postsecondary education (Koehler, 2010). This finding is also inconsistent with the subsequent regression analysis that indicated that youth with learning disabilities who take more of a leadership role in their IEP/transition planning are more likely to earn more credits at a two- or four-year college or university. One possible explanation for these results could be that the community college environment is a more “nurturing” and “supportive” environment than four-year colleges or universities (Field, Sarver & Shaw, 03). As such, college students with learning disabilities who have not traditionally taken a leadership role in their education may feel better supported within the community college context and may be more likely to succeed there as opposed to other environments. It should also be noted that the current study includes an additional wave of data than what was utilized in the 2010 study, which may further explain difference in results.

Whether or not youths reported receiving accommodations from his/her postsecondary institution also accounted for a significant proportion of the variance in their likelihood of graduating from a two-year college or university. Recent studies have brought into question the appropriateness and effectiveness of postsecondary accommodations for youth with learning disabilities (Lewandowski, Lovett, & Rogers, 2008; Sireci, Scarpati, & Li, 2005). The results of the current study add to that literature base by revealing that receipt of accommodations and modifications may not contribute to the success of youth with learning disabilities within the community college context. It is interesting to note that, when the current sample was filtered to include only students who have attended a two-year college or university, the percentage of youth who report receiving accommodations or modifications from the postsecondary institution was 21.4% (versus the overall sample of 9.7%). Despite a relatively high percentage of youth with learning disabilities enrolled at two-year colleges or universities reporting receiving

accommodations or modifications, the current study calls into question the effectiveness of those accommodations and modifications.

Finally, the family involvement variable contributed a significant amount of variance, in the direction hypothesized, to graduation from a two-year college or university. This finding is consistent with previous research that highlights the importance for family involvement in successful transition (Carter et al, 2009; Newman, 2005). It is important to note that the family involvement variable in the current study was limited in scope in that it only measured the way in which the youth's parent or guardian was involved in certain aspects of school in the most recent secondary year. As such, this variable may be missing important additional characteristics of family involvement that may play a greater role in predicting graduation from a two-year college or university.

**Student characteristics.** The social support variable contributed a significant amount of variance to the likelihood of youth with learning disabilities of graduating from two-year colleges or universities. This item asked the respondent if they could find a friend when they need one. A number of studies have highlighted the importance of positive social skills and relationships for success with education settings (Bender & Wall, 1994; Bryan, Donahue & Pearl, 1981; Semrud-Clikeman & Schafer, 2000; Swanson & Malone, 1992; Vaughn & Haager, 1994) and this finding adds to that research by showing that this adaptive skill remains important for perseverance in postsecondary education settings for youth with learning disabilities. Previous research has suggested that students with learning disabilities report needing more social support than their non-disabled peers in postsecondary education, struggling to establish positive relationships, and seeing a lack of social integration into the campus community as a

barrier to perseverance in postsecondary education (Cosden & McNamara, 1997; DaDeppo, 2009; Ryan, Nolan, Keim, & Madsen, 1999; Siperstein, 1988).

Students with learning disabilities who report that they can find a friend when they need one may have an adequate level of social support, which may serve as a protective factor, and therefore be related to their perseverance in postsecondary education. In a qualitative study, Reis and colleagues (2000) conducted interviews with high-ability postsecondary students with learning disabilities and found that friends serve as an important academic support. Youth reported developing friendships with individuals in their classes so that they could discuss the class topics and assignments. Youth with learning disabilities also reported that it was helpful to have a friend in class so they could look at the notes taken by their friend(s) and determine if they had missed anything. As such, it is likely that youth who report being able to find a friend when they need one may benefit from the social and academic support, which could serve to help them persevere in postsecondary education.

In a previous study that examined the expectations of students with learning disabilities for attending postsecondary education, students tended not to rate self-determination as an important factor (Koehler, 2010). The present results indicate that self-determination skills were not important component for graduation from a two-year college or university. It is difficult to determine how, or if, youth in the sample were provided any instruction or enrichment on self-determination in their secondary settings. As previous research suggests, self-determination skills instruction may be more effective when incorporated into the entire curriculum as opposed to teaching self-determination in an isolated and disjointed fashion (Field & Hoffman, 2007). It should also be noted that the majority of youth with learning disabilities in the sample (82.9%) rated their own self-determination as the highest or second highest possible score; therefore, this

may have had an effect on this variable's relative contribution to postsecondary education attendance. Although lower values of self-determination predicted a higher likelihood of graduating from a two-year college or university, nearly all respondents indicated high levels of self-determination. Very few respondents indicated low levels of self-determination.

### **Predictors of Number of Credits Earned from a Two – or Four-Year College or University**

**Demographic variables.** Both demographic variables in this analysis were small but significant predictors of the number of credits earned by youth with learning disabilities at postsecondary institutions in the direction hypothesized. Specifically, results of this study indicated that females with learning disabilities were more likely to attend more postsecondary education than males with learning disabilities. This finding is consistent with recent reports that females are more likely to attend postsecondary education, as well as more likely to graduate from postsecondary institutions (Goldin, Katz, & Kuziemko, 2006; Pollard, 2013). Additional studies have noted that the trend in attendance in two-year college or universities has resulted in higher levels of enrollment in two-year colleges or universities by female students (Gill & Leigh, 2000). Income also contributed a small amount of variance to the overall model, suggesting that youth with learning disabilities who report higher levels of family income were more likely to graduate from a two-year college or university. These results suggest that gender and family income were not strong predictors of the number of credits earned at postsecondary institutions for youth with learning disabilities as other variables in the model.

**Achievement.** Mathematics achievement, as measured by the Woodcock Johnson Test of Achievement calculation and applied problems subtests, contributed a large amount of variance in the direction predicted. That is, individuals with higher standard scores on the mathematics achievement assessment tended to report earning a higher number of credits at a two- or four-

year college or university. However, reading achievement, as measured by the Woodcock Johnson Test of Achievement synonyms, antonyms, and passage comprehension subtests predicted a relatively small amount of variance in the postsecondary education attendance variable in the opposite direction as hypothesized. These results suggest that mathematics achievement is a stronger predictor of postsecondary education persistence than is reading achievement. Other research has indicated that early math skills are a stronger predictor of later achievement among children with learning disabilities (Duncan et. al, 07); however, these findings have not yet been replicated in a postsecondary sample.

It is important to note that, although all students in the current sample had a classification of specific learning disability, the data do not allow further exploration of learning disability type (i.e., reading or math). The National Center on Learning Disabilities (2010) note that the most prevalent type of learning disability is dyslexia; therefore, it is possible that the majority of youth in the current sample struggle more consistently and more severely in the area of reading. Across the sample, the average mathematics achievement score was higher than the average reading achievement score.

**Disability status.** The regression analysis results were opposite of what had been hypothesized in terms of disability status variables for youth with learning disabilities. Specifically, it was found that the number of credits that youth with learning disabilities accrued increased given a higher age at which special education services began and a higher age at which the youth with learning disability were first diagnosed with a learning disability. These findings are consistent with the logistic regression results suggesting that youth with learning disabilities are more likely to graduate from a two-year college or university if they were identified later in life and started receiving special education services later in life.

**Transition services and effective components.** The youth's role in his/her IEP/transition planning accounted for a substantial proportion of variance in explaining number of credit earned. Youth with learning disabilities who were reported to take on a greater role in their IEP/transition planning were more likely to attend more postsecondary education. Myriad models (Eckes & Ochoa, 2005; Field, n.d.; Field & Hoffman, 2007; Gil, 2007; Kochhar-Bryant & Izzo, 2006; Madaus, 2005; Malloy, Cheney & Cormier, 1998; Phillips, 1990; Test, Fowler, Wood, Brewer, & Eddy, 2005; Wehmeyer & Schwartz, 1997) of effective transition planning have posited that students with disabilities who take a more active role in their transition planning will have a more positive transition experience. Previous research (Koehler, 2010) indicated that students' role in their own IEP/transition planning was a significant predictor of their expectation to attend postsecondary education. The current study builds on that finding by showing that the youth's role also predicts actual postsecondary education attendance and provides further support that this is in fact an important variable to consider during the transition process for students with learning disabilities.

The family involvement variable contributed a large amount of variance to the number of credits earned. Myriad studies have posited that family involvement plays an important role in the transition to postsecondary education for youth with disabilities (Carter et al., 2009; Newman, 2005). Additional studies (Smith, English, & Vasek, 2002) reported that family involvement during postsecondary education for college freshmen with learning disabilities can be include a spectrum of activities, ranging from discussing school subjects, to helping youth select courses, to checking youths' homework. The family involvement variable in the current study measured parental involvement in the secondary setting; results indicated that when family involvement was higher, then youth were more likely to have earned more credits at a

postsecondary institution. Taken together, previous studies and the current study suggest that family involvement during secondary education has a lasting impact on postsecondary perseverance for youth with learning disabilities and can continue to play a supportive role during postsecondary education.

Whether or not youth reported receiving accommodations from their postsecondary institution also accounted for a significant, albeit small, proportion of the variance in the number of credits earned at a two- or four-year college or university. As previously discussed, recent studies have brought into question the appropriateness and effectiveness of postsecondary accommodations for youth with learning disabilities (Lewandowski, Lovett, & Rogers, 2008; Sireci, Scarpati, & Li, 2005). The results of the current study suggest that, although services and accommodations from a postsecondary institution for youth with a learning disability may help them persevere, there are other factors which play greater roles in that perseverance and overall success.

**Student characteristics.** In the regression analysis, social support accounted for a large proportion of variance in the number of credits earned. Youth who reported that they were able to find a friend when they needed one were more likely to have earned more credits. This finding is consistent with the above finding that youth who reported having more social support were more likely to graduate from a two-year college or university, thus providing further evidence for the importance of social support in the perseverance of youth with learning disabilities in postsecondary education.

The present results indicate that self-determination skills were not a strong predictor of the number of credits earned at a two- or four-year college or university. This finding is inconsistent with previous research that indicates that self-determination is an important skill for



postsecondary education success (Field & Hoffman, 2007; Field, Sarver, & Shaw, 2003).

However, this finding is consistent with the above finding that self-determination did not predict likelihood to graduate from a two-year college or university. As was mentioned previously, it is impossible to determine what type, if any, self-determination training the individuals within this sample have had.

### **Limitations**

Although the current study addressed important issues related to youth with disabilities' postsecondary education attendance, there are several limitations that must be considered. First, the data used for the current study were collected using almost entirely self-report data. Thus, several factors not accounted for may be influencing participant responses. As with all survey data, respondents may suffer with recall, demonstrate a lack of knowledge of the things being asked, attempt to present oneself in a favorable manner, and/or demonstrate a lack of understanding (Ederer, 2004). Therefore, it is possible that the responses provided are not an accurate representation of the variables measured. In addition to self-report data, a number of the variables in the present study were proxy-report (i.e., parents/guardians were reporting on variables related to the youth, such as age at which the youth first received special education services for example). Although research has shown the highest validity for proxy-report data that are related to objective measures (such as the majority of proxy-report variables in the current study; Eiser and Morse, 2001), there can still be concerns about the validity and reliability of proxy-report data much like the issues reported above with self-report data. Parents may be motivated to present their child in a favorable manner or may be unaware of aspects of their child's life with which they do not have direct contact or influence (Chang & Yeh, 2005).

These concerns may become more severe as the youth becomes older and more autonomous (Guyatt, 1999).

In addition, the grand scope of NLTS-2 may actually be a limitation to the study. A major goal of NLTS-2 was to capture a broad national picture of the transition of youth with disabilities from high school to postsecondary settings. This broad focus and large number of participants limited the degree to which the researchers could go into detail about any one given aspect, such as student and parent expectations or transition services. Given that NLTS-2 was a longitudinal study, the selected measures were not extensive in an effort minimize participant attrition. Because the analyses in the present study were completed using secondary data obtained from the U.S. Department of Education, the experimenter had no control over the questions asked or the manner in which the data were collected.

In addition, the large number of respondents potentially served as a limitation to the analyses, in that this might have led to small effects being statistically significant. For example, a number of regression coefficients of the independent variables in this study (e.g., age when the individual first started receiving special education services in school, age at which the individual was first identified as having a problem or disability, reading assessment, math assessment, family involvement) were small, but reached statistical significance due to the large number of respondents. Therefore, when interpreting the results, it is important to be mindful of the size of the effect of each of the independent variables as demonstrated by the standardized regression coefficient (Trusty, Thompson & Petrocelli, 2004). It should also be noted that the variables with relatively small regression coefficients constituted nearly all of the variables for which the actual relationship with the dependent variable was the opposite of the hypothesized relationship.

NLTS-2 respondents were limited to those students receiving special education services in the year 2000, when data collection began. Therefore, generalizability is limited to that population. Also, although the study did include a variable to indicate if the student was declassified and therefore no longer receiving special education services (and, therefore, no longer diagnosed with a learning disability), these declassified students were still included in the data collection and analyses. Hence, it is possible that a number of participants in the current study were not receiving special education services, and thus were not eligible for transition services.

In addition, there is no information available through the NLTS2 data that suggests how individuals within the sample were identified with specific learning disabilities. With the recent changes in the special education eligibility criteria for specific learning disabilities (i.e., shift from a dual discrepancy model to an RTI model), the generalizability of the reported findings is further limited.

Lastly, there is no information in the NLTS-2 database regarding compliance with providing transition services. Therefore, it is impossible to determine whether or not students are actually being provided with the transition services required by law. The most recent data on nationwide compliance for transition services shows that the majority of states are in fact providing transition services, with a mean of 80.3% compliance and a median of 87.4% compliance. However, states ranged from three to 100% compliance, with only four states meeting the compliance criteria of providing transition services to 100% of their students with disabilities. In addition, even if states or individual schools are compliant under law with the mandate for transition services, there is no way to determine if students are receiving quality transition services or if forms are merely being completed properly.

However, the benefit of using the NLTS-2 data to examine the predictors of postsecondary education attendance is its representativeness on a national scale of all students with learning disabilities. Nearly all studies published previously that examine the factors that contribute to attendance and perseverance in postsecondary educational settings utilize a small sample of students who are already enrolled in college and have identified themselves as students with a disability. Given that, according to NLTS-2 data, only 9.7% of students who had been diagnosed with a learning disability and were attending postsecondary education self-identified to their university or college and received services/accommodations, it is logical to conclude that such a sample would greatly limit the generalizability of previous results. Therefore, the current results provide a much more comprehensive and nationally representative picture of the predictors of postsecondary education attendance and perseverance for students with learning disabilities.

### **Directions for Future Research**

In order to expand upon the literature regarding transition services and best practices, further research is needed that looks deeper into this process. In-depth studies should be conducted that examine the delivery and quality of transition services. Before information is widely available regarding the fidelity to which transition plans are being implemented and the quality of services delivered, it remains difficult to parse out which components of transition planning may be most beneficial for students with disabilities. The current study suggests that social support is an important predictor for increased postsecondary education attendance for students with learning disabilities. Future research should focus on what social skills programs and training are effective in the secondary and elementary school settings for students with learning disabilities and how youth with learning disabilities are cultivating meaningful relationships that

can serve as social support in postsecondary settings. The current study, as well as a number of previous studies have highlighted the importance of family involvement in transition planning. This variable should be examined more closely to determine how it impacts the transition for students with learning disabilities. For example, future research could explore if there are differential effects for families with low amounts of involvement versus families with high amounts of involvement. Future research may also examine if there are specific aspects of family involvement that may be more important than others for students' postsecondary education attendance.

### **Implications for Current Practice**

There are myriad implications for these findings. The student's social support as measured by their ability to find a friend when he/she needed one emerged as a significant predictor in both regression models. This finding clearly highlights the need for social skills programs and training for students with learning disabilities in secondary and elementary settings. In addition, this finding emphasizes the need to incorporate social skills training into students' transition services. As part of this transition planning, those responsible for coordinating transition services should facilitate connections between students with learning disabilities who are entering postsecondary educational settings and those on campus who could provide social support once the student is enrolled. These social connections could prove useful for the student's perseverance in postsecondary education.

Family involvement emerged as an important predictor in both regression models. The variable in the current study specifically measured the role of the parent/guardian in school activities over the most recent school year. These findings highlight the importance of family outreach programs and the facilitation of communication between the school and the family, as a

greater involvement by parents/guardians in school activities may help individuals with learning disabilities persevere in postsecondary settings.

The student's role in his/her IEP/transition planning was an important predictor of postsecondary education attendance. Through participating and taking a leadership role in one's IEP/transition planning, students will have the opportunity to practice the advocacy skills in an environment that they may consider to be safer than the postsecondary environment due to familiarity with the school professionals as well as the knowledge that the responsibility for ensuring that they receive appropriate services still ultimately rests on the school at that point. Students with disabilities can also use that time to develop a fuller understanding of their own disability, knowledge that will greatly benefit them in the postsecondary setting. School professionals can even provide constructive feedback to the student regarding their self-advocacy skills so as to help the student understand what strategies may or may not be beneficial in postsecondary settings.

Table 1

*Exploratory Student Demographic Characteristics*

Characteristic	Unweighted <i>n</i>	Weighted <i>n</i>	Weighted%
Gender			
Female	336	175,835	40.4
Male	214	259,603	59.6
Age at time of survey (years)			
19	71	43,544	10.0
20	129	104,766	24.1
21	135	99,196	22.8
22	140	129,037	29.6
23	75	58,895	13.5
Ethnicity			
African-American	123	88,297	18.3
American Indian/Alaska Native	18	13,649	2.8
Asian	5	1,490	>0.1
Hispanic	43	30,618	6.4
Native Hawaiian/Other Pacific Islander	3	1,176	>0.1
Other	39	27,064	5.6
White	387	319,123	66.3
Family Income			
\$25,000 or less	178	123,832	28.4
\$25,001 - \$50,000	151	143,002	32.8
\$50,001 or more	216	167,749	38.5

Table 2

<i>Disability Status</i>	Unweighted <i>n</i>	Weighted <i>n</i>	Weighted%
Characteristic		<i>n</i>	%
Age of youth when started having problem/disability			
At birth	67	28656	6.9
1	17	7098	1.7
2	25	10353	2.5
3	42	24567	5.9
4	34	19011	4.6
5	89	61705	14.8
6	81	85686	20.5
7	52	52322	12.5
8	48	47916	11.5
9	24	17800	4.3
10	19	22797	5.5
11	12	15234	3.6
12	8	10578	2.5
13	5	5432	1.3
14	5	8425	2.0
Age of youth when first received special education in school			
5	123	44460	10.8
6	103	66407	16.1
7	56	49591	12.0
8	73	64798	15.7
9	57	41305	10.0
10	32	37370	9.1
11	24	34737	8.4
12	30	45206	11.0
13	10	15334	3.7
14	9	3895	.9
15	4	7507	1.8
16	1	408	.1
17	1	1137	.3



Table 3

*Postsecondary Employment*

Characteristic	Unweighted <i>n</i>	Weighted <i>n</i>	Weighted%
Youth Currently Has a Paid Job			
No	142	79,139	27.5
Yes	219	209,087	72.5
Hourly Wage Youth Earned at Current or Most Recent Job			
\$0 – 5.00	14	6953	3.8
\$5.01 – 10.00	167	141600	76.6
\$10.01 – 15.00	33	30864	16.6
\$15.01 – 20.00	6	4708	2.5
\$20.01 – 25.00	1	273	0.1

Table 4

*Postsecondary Education*

Characteristic	Unweighted <i>n</i>	Weighted <i>n</i>	Weighted%
Graduated from a Two-Year College or University			
Yes	33	21,365	4.90
No	98	88,111	20.0
Graduated from a Four-Year College or University			
Yes	9	2,868	0.70
No	29	44,910	10.30
Number of Credits Earned at Two- or Four-Year College or University			
0 – 15	51	51,319	39.60
16 – 30	29	23,367	18.20
31 – 45	14	16,533	13.00
46 – 60	9	10,630	8.10
61 – 75	10	8,510	6.50
76+	16	18,742	14.60

Table 5

*Postsecondary Accommodations*

Characteristic	Unweighted <i>n</i>	Weighted <i>n</i>	Weighted%
Youth received Services or Accommodations from Postsecondary Institution			
Yes	45	42,211	9.7
No	136	127,424	29.3
Types of Accommodations <sup>a</sup>			
Assignment Accommodations	15	8,426	1.9
Child Care	0	0	<.01
Human Aides	19	17,693	4.1
Independent Living Supports	3	78	<.01
Materials Technology Adaptation	22	25,975	6.0
Other Accommodations	4	1,390	0.30
Out of Class Learning Supports	15	16,815	3.9
Physical Adaptations in Classroom	2	32	<.01
Service Coordination/Case Management	1	3,597	0.80
Testing Accommodations	41	41,974	9.6
Therapies	2	3,603	0.80

Table 6

*Student Achievement*

Characteristic	Unweighted <i>n</i>	Weighted <i>n</i>	Weighted%
Math Standardized Score			
40 and below	20	5,654	1.3
40.5 – 55	31	8,844	1.9
55.5 – 70	98	47,793	10.9
70.5 – 85	169	124,430	28.7
85.5 – 100	166	172,901	40.2
100.5 – 115	50	63,206	14.9
115.5 – 130	2	5,138	1.2
130.5 and above	1	1,493	0.3
Reading Standardized Score			
40 and below	25	9,043	1.9
40.5 – 55	48	15,751	3.5
55.5 – 70	94	41,679	9.6
70.5 – 85	185	161,771	37.2
85.5 – 100	150	156,287	36.2
100.5 – 115	41	45,933	10.7
115.5 – 130	5	5,220	1.3

Table 7

*Transition Services and Effective Components*

Characteristic	Unweighted <i>n</i>	Weighted <i>n</i>	Weighted%
Family Involvement			
0	42	21,882	5.8
1	62	45,382	11.9
2	76	60,496	15.9
3	67	51,053	13.4
4	61	42,893	11.3
5	38	37,417	9.8
6	37	30,141	7.9
7	26	20,022	5.3
8	27	24,098	6.3
9	10	7,145	1.9
10	14	17,028	4.5
11	13	13,084	3.4
12	9	5,341	1.4
13	6	4,245	1.1
14	1	209	0.1
15	0	0	0.0
16	1	85	>0.1
Role of youth in setting IEP/transition goals			
Youth was present/participated little	124	70,684	27.3
Youth provided some input	171	131,052	50.6
Youth took a leadership role	59	57,363	22.1

Table 8

*Student Characteristics*

Characteristic	Unweighted <i>n</i>	Weighted <i>n</i>	Weighted%
Social support: I can find a friend when I need one			
No	14	7305	1.7
Sometimes	122	321295	73.9
Yes	410	106384	24.5
Self-Determination			
6	3	2,465	.6
7	2	248	.1
8	9	4,869	1.1
9	35	18,628	4.3
10	74	47,420	11.0
11	178	108,852	25.3
12	239	247,887	57.6

Table 9

*Intercorrelations for Regression Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Gender	--										
2. Income	-.24	--									
3. Reading Achievement	.025	-.09	--								
4. Math Achievement	.37	-.24	-.64	--							
5. Age at which youth was first identified with a disability	-.43	.29	.35	-.29	--						
6. Age youth first received special education services	.01	-.20	.21	-.62	-.38	--					
7. Youth received accommodations from postsecondary institution	.11	-.24	-.09	.30	<-.01	-.18	--				
8. Family Involvement	-.09	.03	.09	-.08	.11	.07	-.26	--			
9. Self-Determination	.20	.23	-.39	.29	-.04	-.19	.07	-.32	--		
10. Social Support	.21	.09	.06	-.02	.08	-.03	.28	.06	.11	--	
11. Role of youth in IEP/transition planning	-.18	-.22	.22	-.29	-.17	.44	.14	-.43	-.15	-.01	--

\*  $p < .001$

Table 10

*Weighted Logistic Regression Analysis Summary for Variables Predicting Graduation from a Two-Year College or University*

Variable	Regression coefficient (B)	Standard Error	Wald	Odds Ratio Exp(B)	95% Confidence Interval
Demographic variables					
Gender	-2.43	.07	1366.44*	.09	.08-.10
Income	-.29	.04	58.45*	.75	.70-.81
Student achievement					
Reading	.04	<.01	154.70*	1.04	1.03-1.04
Math	-.20	.01	1673.32*	.82	.81-.83
Disability status					
Age at which youth with first diagnosed	.47	.02	631.04*	1.59	1.54-1.65
Age at which youth first received special education services	.57	.02	889.60*	1.77	1.71-1.84
Transition services and effective components					
Accommodations received from postsecondary institution	-3.33	.12	794.00*	0.4	.03-.05
Family involvement	.16	.01	192.06*	1.17	1.14-1.20
Role of youth in IEP/transition planning	-.10	.05	4.20*	.91	.83-1.00
Student characteristics					
Self-determination	-.14	.03	19.37*	.87	.82-.93
Social support	1.00	.10	98.388	2.72	2.23-3.31

Note:  $\chi^2 = .15, 501.71$  ( $N = 59,904$ ,  $p < .001$ )

\*  $p < .05$



Table 11

*Weighted Regression Analysis Summary for Variables Predicting Number of Credits Earned at a Two – or Four-Year College or University*

Variable	Unstandardized coefficient	Standardized coefficient	<i>t</i>	Semipartial correlation $sr_i^2$
Demographic variables				
Gender	16.81	.18	51.92*	.18
Income	11.66	.18	50.99*	.17
Student achievement				
Reading	-.45	-.14	-32.96*	-.11
Math	.93	.28	68.57*	.23
Disability status				
Age at which youth with first diagnosed	4.35	.26	77.64*	.26
Age at which youth first received special education services	.38	.02	5.66*	.02
Transition services and effective components				
Accommodations received from postsecondary institution	6.00	.07	22.52*	.08
Family involvement	3.26	.21	63.52*	.21
Role of youth in IEP/transition planning	14.56	.23	74.59*	.25
Student characteristics				
Self-determination	3.84	.08	23.47*	.08
Social support	22.63	.21	60.01*	.20

Note:  $R^2 = .37$  ( $N = 85,004$ ,  $p < .001$ ); Adjusted  $R^2 = .37$

\*  $p < .001$

Table 12

*Unweighted Regression Analysis Summary for Variables Predicting Number of Credits Earned at a Two – or Four-Year College or University*

Variable	Unstandardized coefficient	Standardized coefficient	<i>t</i>	Semipartial correlation $sr_i^2$
Demographic variables				
Gender	14.20	.18	1.64	.20
Income	5.32	.11	.90	.11
Student achievement				
Reading	-.08	-.03	-.24	-.03
Math	.78	.27	1.95	.23
Disability status				
Age at which youth with first diagnosed	2.10	.15	1.21	.15
Age at which youth first received special education services	-.66	-.04	-.33	-.40
Transition services and effective components				
Accommodations received from postsecondary institution	1.61	.02	.17	.20
Family involvement	2.74	.24	2.05*	.24
Role of youth in IEP/transition planning	11.05	.20	1.88	.22
Student characteristics				
Self-determination	-.79	-.20	-.18	-.02
Social support	9.87	.11	1.02	.12

Note:  $R^2 = .32$  ( $N = 80$ ,  $p < .001$ ); Adjusted  $R^2 = .21$

\*  $p < .05$

### List of Appendices

Appendix A: Name of Variables, Respondent, and Wave of Data Collection

Appendix B: Parental Interviews

Appendix C: Youth Telephone Interviews

Appendix D: Direct Assessment

## Appendix A

Question	Respondent	Wave (s) of Data Collection
Gender	Parent/Guardian	Waves 1, 2, 3, & 4
Income	Parent/Guardian	Waves 1, 2, 3, & 4
Ethnicity	Parent/Guardian	Waves 1, 2, 3, & 4
Family Involvement	Parent/Guardian	Waves 1, 2, 3, & 4
Role in IEP/transition planning	Parent/Guardian	Waves 1, 2, 3, & 4
Age at which youth was first diagnosed with a disability	Parent/Guardian	Waves 1, 2, 3, & 4
Age when youth first started receiving special education services	Parent/Guardian	Waves 1, 2, 3, & 4
Graduated from a two-year college or university	Parent/Guardian	Waves 1, 2, 3, & 4
Number of credits earned at a two – or four-year college or university	Parent/Guardian	Waves 1, 2, 3, & 4
Accommodations/services from postsecondary institution	Parent/Guardian	Waves 1, 2, 3, & 4
Types of accommodations/services from postsecondary institution	Parent/Guardian	Waves 1, 2, 3, & 4
Postsecondary employment	Parent/Guardian	Waves 1, 2, 3, & 4
Wages	Parent/Guardian	Waves 1, 2, 3, & 4
Social Support	Youth	Waves 2, 3, & 4
Self-determination	Youth	Waves 1 & 2

## Appendix B

Question	Response Choices
Gender: "Indicate sex of respondent. Ask if necessary"	1 = Female 2 = Male
Income: "In studies like these, households are sometimes grouped according to income. Please tell me which group best describes the total income of all persons in your household in the last tax year, including salaries or other earnings, money from public assistance, retirement, and so on, for all household members, before taxes. Was your household income in the past year ..."	1 = \$25,000 or less 2 = \$25,001 - \$50,000 3 = \$50,001 or more
Ethnicity: "I'm going to read a list of categories. Please choose one or more categories that best describe [YOUTH's] race. Is [he/she] ...." Read categories. Code all that apply. If respondent says mixed race or bi- or multiracial, ask which races the youth represents and code each.	1 = White 2 = African-American or Black 3 = American Indian or Alaska Native 4 = Asian 5 = Native Hawaiian, or Other Pacific Islander 6 = Other (specify)
Family Involvement: "How often an adult in the household has done the following since the beginning of the secondary school year: Attended general school meeting Attended school or class events Volunteered at the school Went to parent/teacher conference"	0 = Never 1 = 1-2 times 2 = 3-4 times 3 = 5-6 times 4 = More than 6 times
Role in IEP/transition planning: "Youth's role in IEP or transition planning"	1 = Youth was present/participated very little or not at all 2 = Youth provided some input 3 = Youth took a leadership role
Age at which youth was first diagnosed with a disability: "Age of youth when started having problem/disability"	Age in years
Age when youth first started receiving special education services: "Age when youth began receiving special education services from elementary, middle, junior, or senior high school"	Age in years

Postsecondary Education: “Youth graduated from high school” “Youth went to 2-year or community college full- or part-time” “Youth has gotten a diploma, certificate or license from a 2-year or community college” “Youth went to a 4-year college or university full- or part-time” “Youth has gotten a diploma, certificate or license from a 4-year college or university”	0 = No 1 = Yes
Accommodations/services from postsecondary institution: “Youth received services from postsecondary”	0 = No 1 = Yes
Types of accommodations/services from postsecondary institution: “Assignment Accommodations” “Child Care” “Human Aides” “Independent Living Supports” “Materials Technology Adaptation” “Other Accommodations” “Out of Class Learning Supports” “Physical Adaptations in Classroom” “Service Coordination/Case Management” “Testing Accommodations” “Therapies”	0 = No 1 = Yes
Postsecondary employment: “Youth currently has a paid job”	0 = No 1 = Yes
Wages: “Hourly amount paid for current job”	Hourly pay

## Appendix C

Question	Response Choices
“I can find a friend when I need one”	1 = Yes 2 = No 3 = Sometimes

## Appendix D

Question	Response Choices
Self-determination: “Re: Opinions, I usually”	1 = I tell others when I have new or different opinions/ideas 2 = I usually agree with others' opinions/ideas
Self-determination: “Re: Decisions, I usually”	1 = I can make my own decisions 2 = Other people make decisions for me
Self-determination: “Re: Getting what I want, I usually”	1 = I can get what I want by working hard 2 = I need good luck to get what I want
Self-determination: “Re: Failure, I usually”	1 = It is no use to keep trying because it will not change things 2 = I keep trying even after I get something wrong
Self-determination: “Re: Choices, I usually”	1 = I usually do not make good choices 2 = I usually make good choices
Self-determination: “Re: Choices made, I usually”	1 = My choices will not be honored 2 = I will be able to make choices that are important to me



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- Wagner, M., Kutash, K., Duchnowski, A. J., Epstein, M. H., & Sumi, W. (2005). The children and youth we serve: A national picture of the characteristics of students with Emotional Disturbances receiving special education. *Journal of Emotional & Behavioral Disorders*, 13(2), 79-96.
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## Jennifer L. Koehler, M.A.

### *Curriculum Vitae*

#### EDUCATION

Doctor of Philosophy – Syracuse University, Syracuse, NY *Completed, to be conferred 12/ 2013*

Degree Program: School Psychology (APA Full Accreditation)

Dissertation: Predictors of Postsecondary Education Attendance for Youth with Learning Disabilities

Advisor: Tanya Eckert, Ph.D.

Master of Arts – University of Connecticut, Storrs, CT

*May 2005*

Degree Program: Educational Psychology

Master's Project: Operation Houndstooth Intervention Theory: Promoting Social Justice in Today's Schools

Advisor: Joseph Renzulli, Ph.D.

Bachelor of Arts – University of Connecticut, Storrs, CT

*December 2002*

Major: Psychology

#### PROFESSIONAL EXPERIENCE

Louisiana State University Health Sciences Center Human Development Center (LSUHSC, HDC): Educational Consultant

##### Teams Intervening Early to Reach all Students (TIERS)

*October 2012 - present*

- Conduct local data analytic workshops to build capacity within state departments of education to analyze and use data for the purpose of improving results
- Provide training to state departments of education in how to use data strategically to target improvement efforts, including working with state Part B Data Managers to obtain data and supply data visualizations for analysis
- Develop on-demand professional learning centered around using data for school improvement
- Consult with states and territories to improve compliance with federal and state requirements of special education
- Provide national, state, regional, and local technical assistance to educational agencies seeking to improve results for students with disabilities, Part C and B
- Help develop and implement formative evaluation systems for urban school systems
- Complete a program evaluation of a state's results-driven accountability efforts to determine the integrity with which the process is being implemented as well as the impact on student outcomes
- Work on a program evaluation to determine the efficacy of special education in one state, including student outcome variables, process variables, and fiscal variables

- Help coordinate the Louisiana School Psychology Internship Consortium, including providing “life skills” seminars to current interns and supervising a technology-based professional development training rotation
- Assist in the writing and submission of a multi-year grant proposal to the Office of Special Education Programs

Louisiana School Psychology Internship Consortium (LAS\*PIC)     *July 2011 – Present*

- Consult with charter schools in New Orleans around special education law issues, behavioral intervention and data-based decision making
- Supervise pre-doctoral interns on a one-day/week rotation focused on identifying and correcting areas of non-compliance on evaluations and IEPs
- Provide school- and district-wide professional development on behavioral principles and interventions
- Conduct needs assessments to identify areas of needs to target technical assistance
- Provide intensive technical assistance to charter school special education directors and staff centered on special education issues
- Connect charter school teachers and administration with community agencies for specific, individualized needs (e.g., transition)

Data Accountability Center (DAC)

*January – September 2012*

- Consulted with states and territories to improve compliance with federal and state requirements of special education
- Worked with states to develop new focused monitoring systems based on results-driven accountability
- Assisted states in the development, analysis, and revisions of SPP/APR
- Provided customized Part C technical assistance to states around general supervision and correction of non-compliance
- Provided training to states in how to use data strategically to target improvement efforts, including working with state Part B Data Managers to obtain data and supply data visualizations for analysis

School Psychologist Extern – Syracuse City School District, Salem Hyde Elementary School

*Fall 2010 – Summer 2011*

- Participated in Committee on Special Education and Pupil Service Team meetings
- Consulted with families and teachers as needed
- Served as a liaison to the School-Based Intervention Team which involves developing, implementing, and monitoring academic and behavioral interventions as well as presenting case results at meetings
- Lead weekly social skills training/anger management groups for at-risk children
- Conducted Functional Behavioral Assessments to inform intervention planning
- Assisted with the collection of school-wide benchmark data
- Provided other school psychological services and assist with administrative tasks as needed

- *Assessments utilized:* Behavior Assessment Scale for Children-II (BASC-2), Behavioral Observation of Students in Schools (B.O.S.S.), Dynamic Indicators of Basic Early Literacy Skills (DIBELS), Gilliam Asperger's Disorder Scale (GADS), Kaufman Test of Educational Achievement, Second Edition (KTEA-II), Stanford-Binet Intelligence Scales, Fifth Edition (SB5), Vineland Adaptive Behavior Scales (VABS), Weschler Individual Achievement Test-III (WIAT-III), Wechsler Intelligence Scale for Children - Fourth Edition (WISC-IV), Woodcock-Johnson Tests of Achievement-III (WJ-III)

Clinician, Office of Disability Services – Syracuse University *Fall 2009 – Spring 2010*

- Conducted screening interviews with university students who had been previously diagnosed with a learning disability and were seeking updated documentation, or who suspected they might have a learning disability
- Conducted full psychoeducational evaluations with university students
- Responsible for report writing and conducting feedback sessions with students
- *Assessments utilized:* Academic Competence Evaluation Scale (ACES), Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), Behavior Assessment Scale for Children-II (College Edition), The College ADHD Response Evaluation (CARE), Weschler Adult Intelligence Scale-II (WAIS-II), Weschler Individual Achievement Test-II (WIAT-II), Weschler Memory Scale (WMS), Woodcock-Johnson Tests of Achievement-III (WJ-III)

Database Manager, Renzulli Learning Systems *Summer 2005-Fall 2007*

- Researched, developed, and uploaded enrichment activities to an online enrichment database
- Assisted with teacher training
- Managed a team of approximately 20 part-time workers who were responsible for locating and submitting enrichment activities
- Assisted with the development of online interest and learning style inventories

## TEACHING EXPERIENCE

Allport Teaching Assistant – Syracuse University *Fall 2008-Spring 2009*

- Responsible for assisting in program development for psychology majors
- Coached students and organized a large undergraduate poster session
- Conducted seminars for psychology majors on various topics

Teaching Assistant, Introduction to Psychology – Syracuse University *Fall 2007- Spring 2008*

- Developed and presented weekly lessons for four sections of 20 students
- Responsible for grading essay quizzes and research papers

Intern, Mansfield Middle School, Mansfield, CT *Fall 2003-Spring 2004*

- Developed enrichment activities in school's interest

- Created and implemented lesson plans for various fifth grade classrooms
- Worked individually with disruptive students and students with behavioral problems

## RESEARCH EXPERIENCE

Research Associate, iFind SUStars – Syracuse University *Fall 2009- May 2011*

- Contacted individuals interested in participating in a 10-year follow-up study funded by the National Institute of Health (NIH) that is investigating the long-term effects of a reading intervention
- Administer and score a battery of standardized assessments
- Traveled to multiple states to assess participants who had relocated
- *Assessments utilized:* Adversity Scale, Conners' Adult ADHD Rating Scales (CAARS), Connor-Davidson Resilience Scale (CDRS), Empathy Scale, Family Support, General Perceived Self-Efficacy Scale, Group Reading Assessment and Diagnostic Evaluation (GRADE), Peabody Picture Vocabulary Test Fourth Edition (PPVT-IV), Peer Affiliations, Positive Affect Scale in Adults, Test of Functional Health Literacy (TOFHLA), Test of Word Reading Efficiency (TOWRE), Weschler Adult Intelligence Scale-II (WAIS-II), Wide Range Achievement Test Fourth Edition (WRAT-IV), Woodcock-Johnson Tests of Achievement-III (WJ-III), Woodcock Reading Mastery Test (WRMT), Youth Risk Behavior Scale (YRBS)

Co-facilitator of Project TRAC (Treatment Research in Academic Competence) – Syracuse University *Fall 2007- May 2011*

- Coordinated a group of 10 undergraduate research assistants
- Trained undergraduate research assistants in curriculum-based measurement
- Conducted behavioral observations on third grade students as part of an implementation of studies
- Conducted writing intervention sessions with students in multiple third grade classrooms and collected procedural integrity data
- Scored curriculum-based measurement
- *Assessments utilized:* Behavioral Observations of Students in Schools (B.O.S.S.), Curriculum Based Measurement in Written Expression (CBM-WE), Test of Written Language – Fourth Edition (TOWL-4)

Research Associate, Formative Assessment and Instrumentation Procedure for Reading (FAIP-R) – Syracuse University *March 2010 – May 2011*

- Assisted with a grant funded (\$1,600,000) project to develop, evaluate, and improve formative assessment procedures for reading
- Conducted field-testing of students in grades 1-5 across site using project-designed curriculum-based reading passages

NCSETR Training Institute (NLTS2) - Washington D.C. *Summer 2009*  
Supervisor: Institute of Education Sciences (IES) and SRI International

- Participated in a 2-day training with instruction on how to utilize data from the National Longitudinal Transition Study-2 (NLTS-2)

Research Assistant, Formative A Comparison of No Practice, Repeated Readings Alone, and Repeated Readings Plus Brief, Supplemental Phonics Training on Children's Oral Reading Fluency – Syracuse University *March 2009 – May 2009*

- Assisted with administering Curriculum Based Reading probes to five school-age children with reading difficulties as part of a graduate student's Master's Thesis
- Provided inter-rater reliability
- *Assessments utilized:* Curriculum Based Measurement in Reading (CBM-R)

Research Assistant, The Transition to Kindergarten: Impact of Transition Preparation on Socio-Behavioral Outcomes for Children with and without Disabilities – Syracuse University *Summer – Fall 2009*

- Assisted with a longitudinal project that examined the relationship between kindergarten transition preparation and child socio-behavioral outcomes in kindergarten among both typically developing children and children with developmental delays and disabilities
- Responsible for communication with parents and data collection
- *Assessments utilized:* Vineland Adaptive Behavior Scales – 2nd Edition (VABS-II)

Graduate Research Assistant, Neag Center for Gifted Education and Talent Development – University of Connecticut *Fall 2003-Spring 2005*

- Collected and analyzed data for a research study intended to expand the conception of giftedness to focus on students using talents in socially constructive ways
- Managed a research project by recruiting participants, collecting, managing and analyzing data for a new gifted behaviors scale
- *Assessments utilized:* Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS)

## WORKSHOPS

Schmitz, S., **Koehler, J.**, & Coulter, A. (May 2013). *Getting Better Results: Arizona Data Action Reading Teams (DART) Workshop 3*. Workshop with the Arizona Department of Education, Phoenix, AZ.

Schmitz, S., **Koehler, J.**, & Coulter, A. (May 2013). *Getting Better Results: Arizona Teams Intervening Early to Reach All Students (TIERS) Workshop 3*. Workshop with the Arizona Department of Education, Phoenix, AZ.

Schmitz, S., **Koehler, J.**, & Coulter, A. (February 2013). *Getting Better Results: Arizona Data Action Reading Teams (DART) Workshop 2*. Workshop with the Arizona Department of Education, Phoenix, AZ.

Schmitz, S., **Koehler, J.**, & Coulter, A. (February 2013). *Getting Better Results: Arizona Teams Intervening Early to Reach All Students (TIERS) Workshop 2*. Workshop with the Arizona Department of Education, Phoenix, AZ.

Schmitz, S., **Koehler, J.**, & Coulter, A. (October 2012). *Getting Better Results: Arizona Data Action Reading Teams (DART) Workshop 1*. Workshop with the Arizona Department of Education, Phoenix, AZ.

Schmitz, S., **Koehler, J.**, & Coulter, A. (September 2012). *Getting Better Results: Arizona Teams Intervening Early to Reach All Students (TIERS) Workshop 1*. Workshop with the Arizona Department of Education, Phoenix, AZ.

Luster, J., Coulter, A., & **Koehler, J.** (May 2012). *DAC-Minnesota-Early Childhood State-Local Data Analytic Partnership: Workshop 2*. Workshop with the Minnesota Department of Education, Roseville, MN.

Schmitz, S., Coulter, A., Dickinson, E., & **Koehler, J.** (March 2012). *State Local Data Analytic Partnership: Using Data to Get Better Results*. Workshop with the Arizona Department of Education, Phoenix, AZ.

Luster, J., Coulter, A., & **Koehler, J.** (February 2012). *DAC-Minnesota-Early Childhood State-Local Data Analytic Partnership: Workshop 1*. Workshop with the Minnesota Department of Education, Roseville, MN.

Schmitz, S., Coulter, A., & **Koehler, J.** (February 2012). *State Analytics: Using State and Local Data to Improve Results: Workshop 3*. Workshop with the Ohio State Department of Education, Akron, OH.

## PRESENTATIONS

**Koehler, J. L.** & Coulter, W. A. (May, 2013). *Making real improvement: Rethinking the use of data to improve program implementation*. Presentation at the 2013 Wested Advance Practice Institute, Sacramento, CA.

Coulter, W. A., Paczak, H., & **Koehler, J. L.** (February, 2013). *Keep your principal from being fired: An evidence-based practice*. Presentation at the 44<sup>th</sup> Annual Convention of the National Association of School Psychologists, Seattle, WA.

Coulter, W. A., Paczak, H., & **Koehler, J. L.** (November, 2012). *Keep your principal from being fired: What school psychologists should do!* Presentation at the 2012 Louisiana School Psychology Association Conference, Lafayette, LA.

Paczak, H.A. & **Koehler, J.** (July 2012). *Using Data to Inform Compliance*. Presented to the faculty and staff of New Orleans Area Charter Schools, New Orleans, LA.

Schmitz, S. & **Koehler, J. L.** (June, 2012). *The state of education in the U.S. Virgin Islands*. Keynote at the USVI Annual Summer Institute, St. Croix, USVI.

Coulter, W. A., Walsh, S. & **Koehler, J. L.** (May, 2012). *Getting serious about getting better results*. Presentation at the 2012 Wested Advance Practice Institute, Sacramento, CA.

**Koehler, J.** & Richard, B. (January 2012). *School-wide Positive Behavior Support: The Fundamentals*. Presented to staff of the Type 5 Charter Schools, New Orleans LA.

Paczak, H.P., **Koehler, J.**, Lopez, M., & Richard, B. (December 2011). *Behavior Intervention Plans: The Building Blocks*. Presented to staff of the Type 5 Charter Schools, New Orleans LA.

Paczak, H.P., **Koehler, J.**, Lopez, M., & Richard, B. (November 2011). *Functional Behavior Assessments: The Nuts and Bolts*. Presented to staff of the Type 5 Charter Schools, New Orleans LA.

**Koehler, J.** & Richard, B. (November 2011). *Behavior and Classroom Management*. Presented to staff of the Type 5 Charter Schools, New Orleans LA.

**Koehler, J. L.** (November, 2011). *Transition for high school students with disabilities to post-secondary settings: An evaluation of students' and parents' expectations*. Presentation at the 2011 Louisiana School Psychology Association Conference, Lafayette, LA.

Richard, B. & **Koehler, J. L.** (November 2011). *New Orleans charter schools: An examination of the data*. Presentation at the 2011 Louisiana School Psychology Association Conference, Lafayette, LA.

Truckenmiller, A.J., Eckert, T.L., Rheinheimer, J. L., **Koehler, J. L.**, Koenig, E. A., Doyle, N. G., & Hier, B. O. (March, 2010). *What is the role of fluency in early writing tasks?*. Poster presentation at the 42<sup>nd</sup> Annual Convention of the National Association of School Psychologists, Chicago, IL.

Rheinheimer, J. L., Eckert, T.L., Truckenmiller, A.J., **Koehler, J. L.**, Koenig, E. A., Doyle, N. G., & Hier, B. O. (March, 2010). *School-home notes: Students' and parents' involvement and perceptions of satisfaction*. Poster presentation at the 42<sup>nd</sup> Annual Convention of the National Association of School Psychologists, Chicago, IL.

Werder, C.S., Koehler, J.L. & Spenceley, L.M. (March, 2010). *Effects of supplemental phonics training on children's oral reading fluency*. Poster presentation at the 42<sup>nd</sup> Annual Convention of the National Association of School Psychologists, Chicago, IL.

Truckenmiller, A. J., Perry, L. J., Rheinheimer, J. L., **Koehler, J. L.**, & Eckert, T. L. (February, 2009). *Curriculum-based measurement in written expression: A criterion validity study*. Poster presentation at the 41<sup>st</sup> Annual Convention of the National Association of School Psychologists, Boston, MA.

Perry, L. J., Truckenmiller, A. J., **Koehler, J. L.**, Ince, C. S., & Eckert, T. L. (February, 2009). *Student-teacher relationships and students' academic competence, engagement, and behavioral outcomes*. Poster presentation at the 41<sup>st</sup> Annual Convention of the National Association of School Psychologists, Boston, MA.

Rheinheimer, J. L., Eckert, T. L., Truckenmiller, A. J., & **Koehler, J. L.** (February, 2009). *Promoting elementary students' writing fluency with school-home notes*. Poster presentation at the 41<sup>st</sup> Annual Convention of the National Association of School Psychologists, Boston, MA.

Truckenmiller, A.J., Eckert, T.L., Rheinheimer, J.L., Perry, L.J., & **Koehler, J.L.** (February, 2008). *Effects of group feedback on children's writing fluency growth*. Poster presentation at the 40<sup>th</sup> Annual Convention of the National Association of School Psychologists, New Orleans, LA.

Rheinheimer, J.L., Eckert, T.L., Truckenmiller, A.J., Perry, L.J., & **Koehler, J.L.** (February, 2008). *Relationship between parental involvement and students' adaptive and maladaptive behavior*. Poster presentation at the 40<sup>th</sup> Annual Convention of the National Association of School Psychologists, New Orleans, LA..

McCoach, D.B., Fogarty, E.A., & **Koehler, J.L.** (November, 2005). *Developing evaluative and other affective instruments: Lessons learned from the field*. Paper presented at the National Association for Gifted Children, Louisville, KY.

Renzulli, J.S., **Koehler, J.L.** & Fogarty, E.A. (November, 2005). *Operation Houndstooth Intervention Theory: Promoting social capital in schools*. Paper presented at the National Association for Gifted Children, Louisville, KY.

Renzulli, J.S. & **Koehler, J.L.** (November, 2004). *Research on gifted students' social action projects*. Paper presented at the National Association for Gifted Children, Salt Lake City UT.

**Koehler, J.L.** (July, 2004). *Using service learning with gifted students*. Paper presented at Confratute, Storrs, CT.

## PODCASTS

Coulter, A., Paczak, H. & **Koehler, J.** (February 2013) *Keep Your Principal From Getting Fired: An Evidence-Based Practice*. Podcast at the 44<sup>th</sup> Annual Convention of the National Association of School Psychologists, Seattle, WA.



## WEBINARS

Schmitz, S. & **Koehler, J.** (April 2013). *Getting Better Results: Arizona Teams Intervening Early to Reach All Students (TIERS)*. Webinar with the Arizona Department of Education, New Orleans, LA.

Schmitz, S., & **Koehler, J.**, & Reed, D. (March 2013). *Getting Better Results: Arizona Data Action Reading Teams (DART)*. Webinar with the Arizona Department of Education, New Orleans, LA.

Schmitz, S. & **Koehler, J.** (January 2013). *Getting Better Results: Arizona Teams Intervening Early to Reach All Students (TIERS)*. Webinar with the Arizona Department of Education, New Orleans, LA.

Schmitz, S., & **Koehler, J.**, & Reed, D. (January 2013). *Getting Better Results: Arizona Data Action Reading Teams (DART)*. Webinar with the Arizona Department of Education, New Orleans, LA.

Schmitz, S. & **Koehler, J.** (November 2012). *Getting Better Results: Arizona Teams Intervening Early to Reach All Students (TIERS)*. Webinar with the Arizona Department of Education, New Orleans, LA.

Schmitz, S., & **Koehler, J.**, & Reed, D. (November 2012). *Getting Better Results: Arizona Data Action Reading Teams (DART)*. Webinar with the Arizona Department of Education, New Orleans, LA.

Walsh, S. & **Koehler, J.** (July 2012) *State-Local Data Analytic Partnership: Using Data to Improve Results*. Webinar with the North Carolina Department of Human Services, New Orleans, LA.

Walsh, S. & **Koehler, J.** (June 2012) *State-Local Data Analytic Partnership: Using Data to Improve Results*. Webinar with the North Carolina Department of Human Services, New Orleans, LA.

Schmitz, S. & **Koehler, J.** (April 2012). *BIE Data Summit Webinar*. Webinar with the Bureau of Indian Education, New Orleans, LA.

Walsh, S. & **Koehler, J.** (February 2012). *State-Local Data Analytic Partnership*. Webinar with the Massachusetts Department of Public Health, New Orleans, LA.

## PUBLICATIONS

Eckert, T. L., Truckenmiller, A. J., Rheinheimer, J. L., **Koehler, J. L.** Koenig, E. A. & Hier, B. O. (in press). Curricular Assessment. In *APA Handbook of Testing and Assessment in Psychology Volume III (School Psychology)*. Washington D.C: American Psychological Association.

**Koehler, J. L.**, Eckert, T. L., Truckenmiller, A. J., Rheinheimer, J. L., & Koenig, E.A. (2009) Transition for High School Special Education Students to Post-Secondary Environments: Best Practices, Benefits, and Barriers. In *Special Education in the 21<sup>st</sup> Century*. Hauppauge, NY: Nova Sciences.

Eckert, T. L., Truckenmiller, A. J., Perry, L. J., Rheinheimer, J. L., & **Koehler, J. L.** (2008). Improving children's academic achievement: Benefits and barriers associated with fluency-based interventions (pp. 327-343). In D. H. Molina (Ed.), *School Psychology: 21st Century Issues and Challenges*. Hauppauge, NY: Nova Sciences.

Renzulli, J.S., **Koehler, J.**, Fogarty, E. (2006). Operation Houndstooth Intervention Theory: social capital in today's schools, *Gifted Child Today*, 29(1), 14-24.

Renzulli, J. S., Gubbins, E. J., & **Koehler, J. L.** (2004). The national research center on the gifted and talented: Recent studies and a look at the future of research in our field. *Journal for the Education of the Gifted*, 27, 107-118.

Renzulli, J.S., **Koehler, J.L.** & Fogarty, E.A. (in press). Operation Houndstooth Intervention Theory: Promoting social capital in today's schools, *The Social and Emotional Needs of Gifted Children 2<sup>nd</sup> Edition*.

## TRAININGS

PREPaRE: School Crisis Prevention and Intervention Training Curriculum I	June 2012
PREPaRE: School Crisis Prevention and Intervention Training Curriculum II	February 2012
Tableau Software: Fundamentals	February 2012
Tableau Software: Advanced	February 2012
Autism Diagnostic Observation Schedule (ADOS) Training	December 2011, January 2012

## PROFESSIONAL AFFILIATIONS

National Association of School Psychologists	2007 – present
Louisiana School Psychology Association	2011 – present
American Psychological Association	2011 – present

## AWARDS AND HONORS

Graduate Tuition Scholarship – Syracuse University	Fall 2007 – present
Travel Grant – Syracuse University	Spring 2008, 2009 and 2010
NCSEI Training Institute Travel Grant – Washington, D.C	Summer 2009
Allport Research Grant – Syracuse University	December 2007, 2008 and 2009
Graduate Tuition Scholarship – University of Connecticut	Fall 2003 – Spring 2005
Special Graduate Student Fellowship – University of Connecticut	Fall 2003 and Spring 2004