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Predictors of Employment and Post-secondary Education Outcomes among Transition Age Youth with Learning Disabilities who accessed Vocational Rehabilitation Services

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Dedication

To my mother and father who have given me endless love and support.

Predictors of Employment and Post-secondary Education Outcomes among Transition Age Youth with Learning Disabilities who accessed Vocational Rehabilitation Services

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This study examined the relationships between consumer demographic/VR service variables and employment outcomes/weekly earnings/level of education for 25,218 individuals ranging from 15 to 18 years old with learning disabilities from the Rehabilitation Services Administration data in 2012. To explore predictors of employment outcomes and the level of education, the participants were randomly split for cross-validation purposes into Sample 1 and Sample 2. A separate logistic regression was run for each sample, and variables (e.g. African American, job placement, college training, and occupational training) were statistically significant in predicting successful employment outcomes. In addition, service variables including African American status, college training, and occupational training were found to be statistically significantly to predict the level of education for transition-aged youth with learning disabilities. Weekly earnings for White males and females combined were statistically higher than African

American males and females combined. Suggested hypotheses and implications for practice and future research are provided.

Keywords: transition, ethnically diverse youth, learning disabilities, employment outcomes, postsecondary education

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CHAPTER 1

Introduction

Learning disabilities (LD) has been regarded as difficult to define and to diagnose since Kirk proposed the term "learning disabilities" in 1962 (Fletcher, Morris, & Lyon, 2003; Herr, & Bateman, 2003). Generally, individuals with LD may suffer from a limited ability to read, write, or compute. Major federal legislation (IDEA, ADA) clarified the evaluation and eligibility of students with learning disabilities in the educational and vocational rehabilitation settings. As a result, national educational statistics presented by the U. S. Department of Education (2012) demonstrated that students with LD consisted of the largest group in public special education.

Even though large numbers of individuals with LD exist, transition outcomes of the this population have not been promising. Compared to individuals without LD, individuals with LD have higher dropout rates in schools, lower enrollment in postsecondary education, and lower employment rates (Cortiella, 2012; U. S. Department of Education, 2012; Wagner et al., 2005). It has been suggested that many transition age youth with LD are struggling when entering adulthood and in need of appropriate supports for successful transition outcomes. Therefore, this study takes a look at current transition outcomes and vocational rehabilitation practices for youth with LD by analyzing the national RSA-911 data.

Statement of the Problem

Challenges to Transition Practices and Employment among Transition Age Youth with Learning Disabilities

Even though many researchers have shown their interest in effective transition practices for transition-aged youth with learning disabilities (Deshler et al., 2001; Dunn, 2008; Price, 2002), students with learning disabilities have been reported to receive less satisfying educational supports and less successful transition outcomes than peers without disabilities (Bassett et al., 1997; Dunn, 2008; Johnson et al., 2002).

A number of issues impact on transition age youth with learning disabilities and transition outcomes. First, full inclusion in the general curriculum may cause academic struggles among students with learning disabilities due to lack of adequate support and intervention at secondary school levels. High stakes testing might accelerate academic failure of transition age youth with learning disabilities, and it may be an obstacle to their successful transition planning (Johnson et al., 2002; Wagner et al., 1993). Second, students with learning disabilities might be isolated during transition planning, compared to students with severe needs, or those who were regarded as unable to receive a general academic curriculum (DeFur, & Reiff, 1994; Lehman, Cobb, & Tochterman, 2001). In other words, transition age youth with learning disabilities may not participate in transition services due to full inclusion and special education practices focusing more on students with severe and visible disabilities.

In addition, a new trend for youth with learning disabilities is an increasing demand for postsecondary education. Recent NLTS-2 data suggest a majority of students with learning disabilities initiated their transition planning at the secondary level, and a

large number of students with learning disabilities were reported to include postsecondary education in their transition plans (Cameto, Levine, & Wagner, 2004).

NEED FOR EVIDENCE-BASED RESEARCH IN TRANSITION PRACTICES

Transition-related research in special education and vocational rehabilitation can be divided based on primary research methodologies, such as quantitative and qualitative. The *National Longitudinal Transition Study-2* (NLTS2) has been considered one of the most comprehensive national reports, which refers to transition outcomes of youth with disabilities upon graduation from high school (Newman, Gameto, Garza, & Levine, 2005) using quantitative methodologies. In Vocational Rehabilitation (VR), quantitative research using RSA data and transition outcomes among youth with learning disabilities has steadily increased (Gonzalez, Rosenthal, & Kim, 2011; Oswald, 2010; Sulewski, Zalewska, & Butterworth, 2012).

Qualitative studies on transition outcomes of youth with learning disabilities have dealt with various topics, such as predictors of success during adulthood (Field, Sarver, & Shaw, 2003; Gerber, Ginsberg, & Reiff, 1992; Goldberg et al., 2003; Raskind et al., 1999), transition planning assessment (Clark, 1996; Sitlington, 1996), and experiences in the workplace and post-secondary educational institutions (Gerber, Reiff, & Ginsberg, 1996; Hadley, 2007; Hicks-Coolick, & Kurtz, 1997; Lindstrom & Benz, 2002; Madaus, Gerber, & Price, 2008).

NEED FOR INTERDISCIPLINARY COORDINATION BETWEEN VR SERVICES AND PUBLIC SPECIAL EDUCATION

In regard to the transition process, two major pieces of legislation (IDEA and ADA) have required active coordination between education officials and VR agencies (National Council on Disability, 2008). For example, students' individualized plans for

employment (IPE) are to be developed by vocational rehabilitation counselors from state VR agencies. Also, like other students with disabilities, secondary-level students with learning disabilities are supposed to receive transition services in public education systems.

Even though the transition process for youth with disabilities, regardless of disability type, is a collaborative work between special education and vocational rehabilitation services, most transition-related research has demonstrated a limited perspective in each field. From this perspective, the recent transition outcome report by the Government Accountability Office (GAO) (2012) provided a good example of interdisciplinary research on transition outcomes of youth with disabilities. The GAO (2012) selected various organizations involved in transition practices (e.g. State Department of Education, Bureau of Vocational Rehabilitation Services, a Workforce Investment Act One-stop Center, non-profit organization serving transition age youth with disabilities, transition specialists and coordinators, representatives from higher education institutions, parents and students with disabilities, and etc.) and interviewed individuals involved in the transition process for youth with disabilities. In terms of coordination of transition activities, this report stated problems about current transition practices for youth with disabilities such as: (a) federal agencies on special transition activities and their complexity, (b) lack of government-wide strategy or framework for coordinating transition services, and (c) absence of assessing the effectiveness of coordination efforts.

Significance of the Study

Despite the large number of students and young adults with learning disabilities, most research on transition has focused more on educational interventions for students with learning disabilities in public education settings. In addition, there are a limited number of quantitative studies on transition outcomes for youth with learning disabilities and research that analyzes national RSA-911 data. Thus, little is known about transition outcomes including employment, weekly earnings, and post-secondary education outcomes related to youth with learning disabilities. At the time of this study, there was one quantitative study exploring employment outcomes of transition-aged youth with learning disabilities based upon RSA-911 data (Gonzales, 2009).

Accordingly, there is a need for additional quantitative research on transition outcomes for youth with learning disabilities from a VR perspective, and need for identifying factors related to transition outcomes of youth with learning disabilities. Understanding the relationships between predictors and successful transition outcomes for youth with learning disabilities is important in designing and implementing effective VR practices.

Purpose of Study and Research Questions

The purpose of this study is to examine demographic characteristics and VR program service variables as predictors of employment and postsecondary education outcomes at closure for transition-aged students with learning disabilities through the following research questions:

- *Question* 1: Which demographic variables and VR program services predict employment outcome at closure for transition-aged youth with learning disabilities?
- *Question* 2: Are White, African American, and Hispanic males and female transition-aged youth with learning disabilities statistically different on weekly earnings?
- *Question* 3: Which demographic variables and VR program services predict the level of education at closure for transition-aged youth with learning disabilities?

Definition of Terms

LEARNING DISABILITIES (LD)

The definitions of learning disabilities can be found in the Individuals with Disabilities Education Improvement Act of 2004 and in the Americans with Disabilities of Act of 1990.

The definition of LD in the IDEA of 2004, which is one of the most representative legislation in special education, has been used in public schools and is as follows:

> "Specific learning disability means a disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations." (The Individuals with Disabilities Education Improvement Act of 2004, PL 108-446)

The ADA of 1990, which is one of the most representative legislation in rehabilitation practices, did not clearly mention the definition of LD. Instead, any impairment limiting major life activities including learning and reading are defined as disability in the ADA. The definition of disability in the ADA of 1990 has been employed in the state/federal vocational rehabilitation programs and is as follows:

> "(1) Disability means
>
> (A) a physical or mental impairment that substantially limits one or more major life activities of such individual; (B) a record of such an impairment; or (C) being regarded as having such an impairment (as described in paragraph (3)).

(2) Major Life Activities

(A) In general

For purposes of paragraph (1), major life activities include, but are not limited to, caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, and working.

(B) Major bodily functions

For purposes of paragraph (1), a major life activity also includes the operation of a major bodily function, including but not limited to, functions of the immune system, normal cell growth, digestive, bowel, bladder, neurological, brain, respiratory, circulatory, endocrine, and reproductive functions." (Americans with Disabilities of Act of 1990, PL. 110-325)

TRANSITION

Even though Madeleine Will (1984) first coined the term "transition", Halpern's definition of transition has been used. Halpern (1992) defined transition as "a period of floundering that occurs for at least the first several years after adolescents leave school and attempt to assume a variety of adult roles in their communities." (pp. 2). This definition goes beyond each individual's employment only and covers a variety of related services and experiences (Halpern, 1985).

In terms of the recent definition of transition, the Division of Career Development and Transition (DCDT) under the Council for Exceptional Children published a special issue regarding transition topics. In this edition, transition was defined as "transition compasses a broad set of skills, strategies, activities, and linkages that more fully reflect

the complexities of being a happy and successful adult." (Madaus, Dukes, & Carter, 2013, pp. 4).

DEMOGRAPHIC VARIABLES

The RSA-911 Case Service Reporting Manual (2008) defined demographic variables as follows:

Gender. Identified gender as male or female; categorical variable.

Age at application and closure. Individual's age at the time of application and closure; continuous variable.

Race/Ethnicity. Identified race/ethnicity as White, African American, Asian, and Hispanic; categorical variable.

Level of Education at application. Individual's level of education at the time of application; categorical variable.

Employment status at application. Individual's employment status at the time of application; categorical variable.

Hours worked in a week at application. The amount of earnings in a typical week at the time of application; continuous variable.

Weekly earnings at application. The amount of earning in a typical week at the time of application; continuous variable.

Primary source of support at application and closure. Individual's largest source of financial support at the time of application and closure; categorical variable.

Living arrangement. Individual's residential facility; categorical variable.

SSI or SSDI at application and closure. Individual's receipt of Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI) payment made by federal, state, and/or local governments; categorical variable.

Medical insurance at application and closure. Individual's medical insurance coverage including. Medicaid and Medicare are major medical insurances; categorical variable.

VR-SERVICE VARIABLES

VR (Vocational Rehabilitation) Services refer to services provided by federal/state VR agencies to an individual with a disability, after determining eligibility and developing an individualized plan for employment (IPE) (RSA-911 Case Service Reporting Manual, 2008). According to the RSA-911 Case Service Reporting Manual (2008, pp. 22 - 30), the definitions of VR service variables are as follows:

Assessment. Services provided when determining eligibility and services needed for an individual. Assessment includes trial work experiences and extended evaluation.

Diagnosis and treatment of impairments. Services provided to an individual for diagnosis and treatment of impairments. These include corrective surgery, diagnosis and treatment for mental and emotional disorders, dentistry, nursing services, physical therapy, occupational therapy, speech or hearing therapy, and many other services.

Vocational rehabilitation counseling and guidance. Discrete therapeutic counseling and guidance services provided to an individual.

College training. Full-time or part-time academic training leading to an academic degree above the high school level.

Occupational training. Occupational or vocational training provided not leading to an academic degree or certification.

On-the-job training. Training in specific job skills by employers.

Basic academic remedial or literacy training. Literacy training provided to remediate basic academic skills for employment.

Job readiness training. Training to prepare an individual for the world of work. This training includes instructions for appropriate work behaviors, punctuality, or appropriate dress and grooming.

Miscellaneous training. Any training not recorded in one of the other categories. For example, GED or high school training leading to a diploma is included.

Job search assistance. Assistance for supporting and assisting an individual in searching for an appropriate job. Included job search assistance are resume preparation, identifying job opportunities, or developing interview skills.

Job placement assistance. A referral to a specific job resulting in an interview.

On-the-job supports. Support services provided to an individual who has been placed in employment. Included services are job coaching, follow-up and following-along, and job retention services.

Maintenance. "Monetary support provided for those expenses such as food, shelter, and clothing that are in excess of the normal expenses of the individual, and that are necessitated by the individual's participation in an assessment for determining eligibility and VR needs or while receiving services under and IPE (pp. 27)".

Information and referral. Information and referral services provided when an individual needs to receive services from other agencies.

Source of referral. Source that referred an individual to the VR program; categorical variable.

CRITERION/OUTCOME VARIABLES

The RSA-911 Case Service Reporting Manual (2008) defined criterion/outcome variables are as follows:

Type of closure. Type of closure when exiting the VR program; categorical variable.

Employment status at closure. Employment status at closure when exiting the VR program with an employment outcome; categorical variable.

Weekly earnings at closure. The amount of earning in a typical week when exiting the VR program; continuous variable.

Level of education at closure. The level of education when exiting the VR program; categorical variable.

Source of referral. Source that referred an individual to the VR program; categorical variable.

Cost of purchased services at closure. "The total amount of money spent by the state VR agency to purchase services for an individual (pp. 21)"; continuous variable.

Length of participation in the program. Calculated period from the application to the closure; continuous variable.

CHAPTER 2

LITERATURE REVIEW

This chapter provides a review of the literature, including: (a) historic and legal backgrounds of transition for youth with learning disabilities; (b) transition planning for youth with learning disabilities, (c) evidence-based practices for transition age youth with learning disabilities; and (d) transition outcomes and emerging issues in transition practices among young adults with learning disabilities.

Historic and Legal Backgrounds of Transition for Youth with Learning Disabilities

Historically, the treatment and attitudes toward people with disabilities have often been marked with ambivalence, intolerance, isolation, prejudice, segregation and societal fears. The inhumane treatment toward people with disabilities became extreme in the early 1900s, such as sterilization laws in Germany and the United States. And, many of these practices ended at the end of World War II (Gallagher, 1995; Marini, Glover-Graf, & Millington, 2012). These circumstantial changes surrounding people with disabilities led more people to think about the quality of life of people with disabilities, especially their transition into adulthood. These changes appeared both in public special education and in the vocational rehabilitation system.

To provide a brief overview of historic and legal backgrounds of transition for students with learning disabilities, this section includes (a) early vocational education for transition-aged students with disabilities, (b) the transition movement and early special education legislation, (c) the Individuals with Disabilities Education Act (IDEA), (d) No

Child Left Behind (NCLB) and education reform, and e) vocational rehabilitation legislation.

EARLY VOCATIONAL EDUCATION FOR TRANSITION-AGED STUDENTS WITH DISABILITIES

Prior to the 1980s, a concept of vocational education for students with disabilities had been used instead of transition services in education. Early vocational education started with work/study programs. The work/study programs were very popular during the 1960s, and they were actively conducted in cooperation with the public schools and local rehabilitation agencies (Halpern, 1973; 1974; 1991; Kolstoe & Frey, 1965).

The work/study approach was rooted in the idea that students with disabilities had better concrete than abstract intelligence. Therefore, in the work/study programs, community jobs were broken down into component skills and component skills were incorporated into the curriculum. Also, step-by-step instructions for job skills were recommended in early vocational education classes (Duncan, 1943; Hungerford, 1943; Kolstoe, 1961; Sitlington, Neubert, & Clark, 2010). These work/study programs were designed for students with mild disabilities and their job experiences under the work/study programs. Students were provided school credits without being paid money (Halpern, 1991).

However, the popularity of work/study programs began to shrivel in the 1970s. The reasons were; First, early vocational education programs were often criticized due to limited options of job skills taught in the programs (e.g. food service, horticulture, janitorial tasks) (Brolin & Kolstoe, 1978). Second, changes in employment trends and special education legislation called for increased standards in academic and vocational areas. For example, in 1975, the Education of All Handicapped Children Act (EHA) was

mandated, which declared the responsibility of student's work readiness to be put on the public education system. To develop work readiness and to meet postsecondary goals, students with disabilities were advised to enroll in skill training or work experience programs in high school (Sitlington, Neubert, & Clark, 2010). Third, as the legal responsibility for transition planning for students with disabilities was shifted to public schools under the Education of All Handicapped Children Act (EHA) of 1975, the rehabilitation agency started to move apart from work/study programs. This move was influenced and reinforced by the requirement of the 1973 amendments to the Vocational Rehabilitation Act, which did not allow each local agency to pay for services that may be duplicative with other administrative agencies. At the same time, school professionals did not welcome the rehabilitation agency representative's supervision over their teachers in work/study programs (Halpern, 1991).

TRANSITION MOVEMENT AND EARLY SPECIAL EDUCATION LEGISLATION

In the 1980s, transition services started to draw more attention in special education. Madeleine Will (1984a) was the first person who coined the term "transition" by saying that transition is an outcome-oriented process including a variety of services and experiences. Following Halpern's argument (1985) that transition should go beyond each individual's employment only, the definition of transition was generally defined as "a period of floundering that occurs for at least the first several years after adolescents leave school and attempt to assume a variety of adult roles in their communities." (Halpern, 1991, pp. 2)

There were two main forces supporting the transition movement in the 1980s. First, the federal initiative brought a new start to the transition movement. The legal responsibility for transition planning for students with disabilities was shifted to the

public school under the Education of All Handicapped Children Act (EHA) of 1975. (Szymanski & Danek, 1985; Rubin & Roessler, 2008). Second, documented outcomes of poor employment and independent living outcomes of students with disabilities who received special education services under the Education of All Handicapped Children Act (EHA) of 1975 highlighted the need for transition services for students with disabilities in public education.

Therefore, the Office of Special Education and Rehabilitative Services (OSERS) initiated the transition movement along with the Career Education Implementation Act (Halpern, 1982). Also, the Office of Special Education and Rehabilitative Services (OSERS) suggested a new transition school-to-work model, named as a "bridges" model (Halpern, 2001; Johnson et al., 2002; Sitlington, Neubert, & Clark, 2010). The "bridges" model included three-bridges, which were "transition without special services", "transition with time-limited services", and "transition with ongoing services" (Will, 1984). The last type of service came to be known as "supported employment". However, some researchers criticized the employment-oriented tendency in the federal transition movement (Halpern, 1981; Will, 1984).

THE INDIVIDUALS WITH DISABILITIES EDUCATION ACT (IDEA)

In 1990, the historic Individuals with Disabilities Education Act (IDEA) was passed. The Individuals with Disabilities Education Act (IDEA) of 1990, which was the amended version of the Education of All Handicapped Children Act (EHA) (Wright & Wright, 2006), was the first legislation which required transition services to be addressed in a student's IEP by age of 16. The transition services listed in the Individuals with Disabilities Education Act (IDEA) of 1990 expanded the coverage from the previous vocational education, focusing more on vocational training. The Individuals with

Disabilities Education Act (IDEA) of 1990 included transition service planning for multiple outcomes, such as employment, postsecondary education, independent living, community participation, and social/interpersonal relationships (Halpern, 1994). The IDEA, reauthorized in 1997, listed additional clauses about transition services in secondary education, such as easier access to the general education curriculum and inclusion of students' courses of study in transition services (Johnson et al., 2002).

The Individuals with Disabilities Education Act (IDEA) of 2004 added some important definitions to transition services. When amending the Individuals with Disabilities Education Act (IDEA), Congress emphasized accountability, evidence-based special education practices, and results-oriented process (Wright & Wright, 2006). Based on the notion of a results-oriented process, the Individuals with Disabilities Education Act (IDEA) of 2004 defined transition services as a coordinated set of activities for a child with a disability. And, transition services were designed within an outcome-oriented process to set up measurable outcome goals and to facilitate a child's transition from school to adulthood activities including employment, further education, and independent living (Morningstar et al., 2010; Sitlington, Neubert, & Clark, 2010; Wright & Wright, 2006). Therefore, interagency linkages continued to be important when providing transition services for individuals with disabilities in the Individuals with Disabilities Education Act (IDEA) of 2004 (Brooke et al., 2006; Grigal, Neubert & Moon, 2005). Also, the changes in transition definitions required professionals and families to be aware of transition-related programs (e.g. academic, vocational, diploma) at the early stage of the middle school years (Neubert, 2003; Repetto et al., 2006).

NO CHILD LEFT BEHIND (NCLB) AND EDUCATION REFORM

In 2001, the U. S. Department of Education mandated The No Child Left Behind (NCLB) Act under the Elementary and Secondary Act (ESEA), and it caused a variety of changes in educational fields. The No Child Left Behind (NCLB) Act of 2001 focused on accountability, standards, and outcomes for all students in public education system. Under the emphasis on results-oriented educational practices, scientifically evidence-based research was emphasized in The NCLB as "research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs" (NCLB, 20 U.S.C 7801 9101[37]). Most education programs under The NCLB were largely designed to increase students' competency in academic areas (e.g. reading, English language learning, or math) (Johnson et. al., 2002). These administrative efforts toward scientifically-based educational research also yielded several consequences, such as establishment of the What Works Clearinghouse (WWC) reviewing educational practices, and increased appearance of special education articles on various scientific research methodologies (Test et al., 2009).

However, the recent educational reform led by the NCLB Act of 2001 has been criticized, because it has been "a major force in shifting schools away from career education, vocational training, community-based instruction, and transition planning" (Sitlington, Neubert, & Clark, 2010, pp. 50). While schools went through the pressure of meeting academic standards, special education teachers tended to focus on instructional strategies and accommodations in general content classes (Sitlington et al., 2010). Also, high-stakes testing required by NCLB tended to include academics only, while the general curriculum included both academic and non-academic areas (e.g. career

education). Under these circumstances, students with learning disabilities who were in need of individualized transition planning may receive less satisfying educational supports and less successful transition outcomes than students with obvious or more severe disabilities (Bassett et al., 1997; Dunn, 2008; Johnson et al., 2002).

The increased awareness of effective transition practices in educational fields led several researchers to focus on transition-related areas, such as content area learning, employment-preparation, and social functioning in public educational settings. Deshler and his coworkers (2001) suggested approaches for instruction in content areas. Approaches included developing interventions for making information in academically diverse classes more understandable and memorable, and developing students' negotiation strategies for the demands of content classes. In regard to social and emotional functioning of students with learning disabilities, many scholars (Dunn; 2008; Gerber, Ginsberg, & Reiff, 1992; Lichstenstein, 1993; Price 2002) emphasized instruction in coping and compensatory strategies in the secondary curriculum based on positive characteristics among individuals with learning disabilities, such as motivation, persistence, and creativity.

VOCATIONAL REHABILITATION LEGISLATION

During the early 20th century, rehabilitation-related legislation, such as the 1917 Smith-Hughs Act, the 1918 Soldier's Rehabilitation Act, and the Social Security Act of 1935, opened the door toward providing vocational training services for people with disabilities. In fact, these laws were mandated based on the need for increased services to war veterans with combat wounds during that period. The sudden appearance of injured soldiers allowed people to perceive this issue as universal and to change their myth of heritability of a disability (Sitlington et al., 2010). Emerging civil right advocates in the

1960s, the Vocational Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) of 1990 helped rehabilitation services to be extended to every individual with a disability including transition age youth with disabilities (Herr & Bateman, 2003; Parker & Szymanski, 1998).

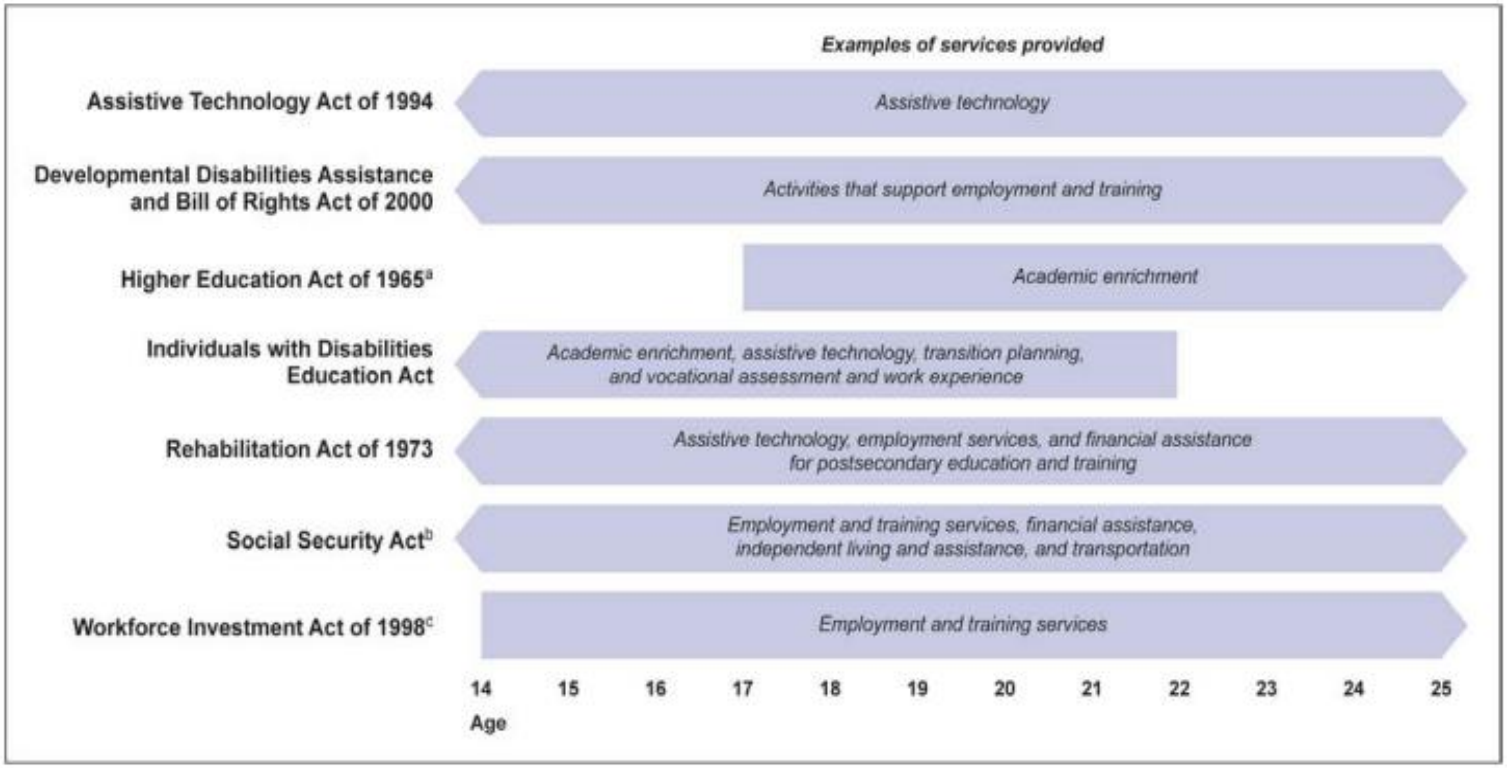
Nowadays, two vocational rehabilitation acts primarily affect employment of people with disabilities: The Americans with Disabilities Act of 1990 and the Ticket to Work and Work Incentives Improvement Act of 1999. First, the Americans with Disabilities Act of 1990 allowed the increase of labor market opportunities for every individual with disabilities, such as anti-discrimination and accommodation guidelines at the workplace (Bruyere, Golden, & Cebula III, 2010). In regard to the transition process, the Americans with Disabilities Act of 1990 required VR agencies to coordinate with educational professionals to deliver transition services and to achieve students' transition goals. Also, students' individualized plans for employment (IPE) were to be developed in collaboration between vocational rehabilitation counselors from state VR agencies and educational officials from students' secondary-level schools (National Council on Disability, 2008). Like other students with disabilities, secondary-level students with learning disabilities are supposed to receive transition services provided by both vocational rehabilitation agencies and public educational system.

The Ticket to Work and Work Incentives Improvement Act of 1999 allowed financial supports for working-age individuals with disabilities. The Ticket to Work Act of 1999 was passed to provide beneficiaries and recipients of Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI) incentives for people with disabilities to work including transition age youth (Golden & Sheldon, 2005). However, some previous studies (Catalano et al., 2006; Marini, 2008) noted that receipt of SSI or

SSDI negatively affected employment rates and use of job placement services across every disability group. Based on criticisms concerning SSI or SSDI, some state vocational rehabilitation agencies became involved with VR system reforms in the current SSI or SSDI system, which included introduction of Trial Work Periods (Hoff et al., 2008) and state-by-state based "Employment First" movements (Schaller et al., 2013; Rehabnetwork, 2011).

To provide a brief summary of key federal legislation for transition of students with disabilities, Figure 1 from the United States Government Accountability Office (GAO) is included (2012).

Figure 1. *Key Federal Legislation for Transition of Students with Disabilities*



Note: From the report titled as *Students with Disabilities: Better Federal Coordination could Lesson Challenges in the Transition from High School* (p.6), by United States Government Accountability Office (2012)

Transition Planning for Youth with Learning Disabilities

Transition planning, which conceptualizes and designs transition practices for youth with disabilities, has been regarded as important in special education research and policy, after many studies showed that adolescents with disabilities experienced difficulties related to employment, community engagement, independent living, functional life skills, and participation in postsecondary settings (Dunn, 2008; Blackorby & Wagner, 1996; Scanlon & Mellard, 2002). In addition, representative legislation, such as IDEA of 1997 included transition planning in IEPs at secondary levels (Cameto, Levine, & Wagner, 2004) and the Americans with Disabilities Act of 1990 required active coordination between educational officials and VR state agencies (National Council on Disability, 2008). Transition planning for youth with learning disabilities in this section includes (a) current transition planning practices, and (b) youth with learning disabilities in transition planning.

ISSUES OF CURRENT TRANSITION PLANNING PRACTICES

In regard to current transition planning practices for students with disabilities, Cameto and his colleagues (2004) demonstrated various findings after analyzing the National Longitudinal Transition Study-2 (NLTS2), which is regarded as one of the most representative and comprehensive transition studies. First, a detailed transition planning process (e.g. taking vocational education courses, accessing postsecondary vocational training/employment or receiving instruction on transition-focused curriculum) focused more on older students (17- and 18-year-old) even though three-fourths of 14-year-olds initiated transition planning. Second, about half of students with disabilities plan to go to college. In other words, the demand for postsecondary education increased. Third, parents' satisfaction about transition planning varied depending on disability category.

For example, parents having children with intellectual disabilities or visual impairments reported higher satisfaction than those with children with autism.

Influence of Culture and Ethnicity in Transition Planning

Cultural and ethnic diversity have been known for influencing transition planning practices for students with learning disabilities. In terms of assessment for transition planning, traditional psycho-educational assessment approaches may bring challenges of students with learning disabilities from multicultural backgrounds. Therefore, conducting the assessment process, examining test scores, and interpreting scores need to be carefully done due to possible biases in assessment (Clark, 2008).

Also, ethnic diversity combined with household income may influence the likelihood of a student having a transition goal of attending a college or university. For instance, African American students' household income was lower and they were less likely to participate in transition planning than other ethnic groups of students. Regarding these results on racial differences, Cameto and his colleagues (2004) asserted that "the lower level of involvement of these parents is not a reflection of the value they place on the process but more an indicator of their availability to participate, their comfort with school staff or procedures, or cultural influences." (pp. 14).

Youth with Learning Disabilities in Transition Planning

Recent NLTS-2 data suggests a majority of students with learning disabilities initiated their transition planning at secondary levels. Also, a large number of students with learning disabilities were reported to include postsecondary education accommodations in their transition plans and to have general education vocational teachers in the transition planning process (Cameto, Levine, & Wagner, 2004).

When it comes to transition age youth with learning disabilities, critical issues still existed among youth with learning disabilities in transition planning. First, full inclusion in the general curriculum might cause academic failure due to lack of adequate support and intervention at secondary school settings. High stakes testing might accelerate academic failure of transition age youth with learning disabilities, and it might be an obstacle to successful transition planning (Johnson et al., 2002; Wagner et al., 1993). Also, students with learning disabilities might be isolated in transition planning, compared to students with severe needs or to those who were regarded as unable to receive the general academic curriculum (DeFur, & Reiff, 1994; Lehman, Cobb, & Tochterman, 2001).

Second, strengthened high school graduation requirements affect graduation of youth with learning disabilities. Even though some states provide a standard diploma for meeting IEP goals, youth with learning disabilities have to meet the criteria of the number of credits and cutoff line of the graduation exam (Guy et al., 1999).

Third, high school dropout rates among youth with learning disabilities are an important problem in successful transition planning. Regarding high school dropout rates, Kaufman and his colleagues (2004) addressed the value of a high school diploma as "a minimum requirement for entry into the labor market" (p. 1). According to the report issued by the National Center for Learning Disabilities (Cortiella, 2011), 22% of students with learning disabilities dropped out from high school in 2009, which was lower than the 40% in 2000. Recently, dropout rates from high school for students with learning disabilities have declined at 14.7% (Thurlow, 2012). Furthermore, the dropout rate of youth with learning disabilities was much higher than that of youth without disabilities.

Evidence-based Practices for Transition Age Youth with Learning Disabilities

The education reform in the early 2000s, represented by No Child Left Behind, emphasized evidence-based educational practices in school settings. As a result, the need for research exploring evidence-based transition practices for students with disabilities has risen during the last decade (Kohler and Field, 2003; Test et al., 2009). To identify and understand evidence-based transition practices for transition-aged students with learning disabilities for this study, this chapter followed and modified the category of evidence-based transition practices suggested in the work by Kohler and Field (2003) and in literature review by Test et al. (2009), which reviewed 32 empirical studies between 1984 (i.e., the year of Will's transition definition) through 2008.

This section provides a review of the literature of evidence-based transition practices for transition age youth with learning disabilities, including: (a) student-focused planning, (b) student development, and (c) family involvement. Under each category, related empirical studies on transition-aged youth with learning disabilities are listed. This study modified and combined tables suggested by Test et al. (2009) in Table 1.

Table 1. *Evidence-based Practices for Transition Age Youth with Learning Disabilities*

Practices	Sub-practices and needed skills
Student-Focused Planning	Involving students in the IEP process Monitoring students' progress
Student Development	Daily activity skills (Purchasing, banking, grocery shopping, home maintenance and etc.) Employment –related skills (Job application, interviewing, job-specific skills, incorporating skills and etc.) Self-determination skills (Self advocacy, self-esteem, problem-solving, decision-making, workplace strategies and etc.) Communication skills
Family Involvement	Family expectations about transition planning Family roles in development of students' self-determination

Note: Modified and combined from tables by Test et al. (2009)

STUDENT-FOCUSED PLANNING

Student-focused planning in transition practices generally includes involving students in the Individualized Education Program (IEP) meetings and self-directed Individualized Education Program (IEP). The Individualized Education Program (IEP) forms instructional programs and sets an educational foundation appropriate for each student with a learning disability. Therefore, students' meaningful involvement in their IEP meetings and their constant monitoring of their progress were regarded as important (Test et al., 2009). A literature review done by Cobb and Alwell (2009) also supported the importance of students' involvement in transition planning.

Despite the previous findings, the reality in school settings may be tough. Regardless of disability type, many students with disabilities were not familiar with their IEP components and with being engaged in IEP meetings (Agran et al., 1999; Lovitt & Cushing, 1994; Mason, McGahee-Kovac, Johnson, & Stillerman, 2002; Mason et al., 2004; Test et al., 2004; Thoma, Rogan, & Baker, 2001). Also, Test and his coworkers (2004) noted that many of the intervention studies did not report the fidelity of treatment or the effects of IEP participation on students' daily lives.

STUDENT DEVELOPMENT

The concept of student development in transition practices is embedded in educational practices for transition age youth with disabilities (Test et al., 2004). Examples are teaching life skills, purchasing/grocery shopping, banking, employment preparation, cooking/food preparation, functional reading/math, home maintenance, safety, self-advocacy/self-determination, communication and leisure skills (Test et al., 2004).

Daily life skills

For transition-aged youth with disabilities, teaching daily life skills is important for their quality of life (Hughes et al., 1997). Transition age youth with disabilities need to prepare for their independent living as well as supported/competitive employment. Educators and practitioners have focused on teaching youth with disabilities daily activity skills, such as purchasing (Alcantara, 1994; Xin, Grasso, Dipipi-Hoy, & Jitendra, 2005), banking (Browder & Grasso, 1999; Moon & Inge, 2000), grocery shopping (Ayres, Langone, Boon, & Norman, 2006; Mechling, 2004), cooking (Mechling, Gast, & Fields, 2008), and home maintenance (Mechling & Gast, 1997; Taylor, Collins, Schuster, & Kleinert, 2002). Commonly used instructional strategies for daily activity skills were video modeling, verbal instruction/feedback, and role-playing (Browder & Grasso, 1999; Morse et al., 1996).

Even though several evidence-based studies on daily activity skills have been conducted and demonstrated existing teaching strategies of daily activity skills were relatively effective, some studies adopted single-subject designs including participants with mild to moderate intellectual or developmental disabilities (Xin, Grasso, Dipipi-Hoy, & Jitendra, 2005). Findings from those studies may not satisfy the demand for generally effective teaching strategies among practitioners working with transition-aged individuals with learning disabilities, and might be disputed for adopting those strategies in accountability-focused secondary curriculums with successful transition of youth with learning disabilities.

Employment-related skills

Teaching transition-aged youth with disabilities employment-related skills, such as completing a job application, attending job interviews, or learning job-specific skills, has been emphasized for a long time (Mechling & Ortega-Hurndon, 2007; Rusch & Phelps., 1987; Sanford et al., 2011; Test et al., 2004; Wolery et al., 1990). Compared to youth with other disabilities, transition-aged youth with learning disabilities tended to get competitive employment positions with higher hourly wages (Sanford et al., 2011). A variety of instructional strategies including verbal instruction or video modeling have been adopted and demonstrated to be relatively effective in developing employment-related skills of youth with disabilities regardless of disability type (Mechling & Ortega-Hurndon, 2007; Rusch & Phelps., 1987; Sanford et al., 2011; Test et al., 2004).

Despite previous trials of developing employment-related skills, individuals with disabilities struggled with job acquisition and retention due to several reasons (Mechling & Ortega-Hurndon, 2007). First, individuals with disabilities failed to complete a task with multiple and correct responses (Rusch & Phelps., 1987). Second, their productivity was relatively inadequate for the workplace (Grossi & Heward, 1998; Rusch, 1986). Third, flexibility, which was regarded as an essential factor in competitive employment settings, in work routines mattered (Rusch & Phelps., 1987). Because of these issues, jobs many individuals with disabilities took were entry level service occupations (Lagomarcino, 1990; Rusch, 1986), and many vocational instructions focused on teaching job related behaviors, whose targets generally seemed to be individuals with intellectual disabilities, rather than analyzing the jobs and the multiple/complex sequences needed for the assigned tasks (Kohler, 1994; Mechling & Ortega-Hurndon, 2007), which is important for individuals with learning disabilities in the workforce.

In regard to meeting challenging vocational needs for students with learning disabilities, Evers (2008) pointed out that special educators should not assume that students with learning disabilities already have occupational skills in other situations. And, several transition models, which have been implemented across public educational settings, were based upon advanced occupational needs for students with learning disabilities (Evers, 2008). For example, the School-Based Career Development and Transition Education Model suggested by Clark and Kolstoe (1995) focused on incorporating skills related to attitudes, habits, and social interactions into academic curriculum in K-8 settings. As students with learning disabilities get older, they become more exposed to career educational classes or college preparatory programs with increased linkages to adult services agencies (e.g. federal/state VR agencies, post-secondary educational institutions, etc.). These transition programs, such as the School-Based Career Development and Transition Education Model, help students with learning disabilities to become independent and seek out needed VR services on their own (Evers, 2008).

Self-determination skills

In regard to evidence-based transition practices for students with learning disabilities, self-determination skills have been regarded as one of the most important skills (Agran, Blanchard, Wehmeyer, & Hughes, 2001; Allen, Smith, Test, Flowers, & Wood, 2001; Hughes, 1996; Test et al., 2004). Self-determination is known as "the ability to identify and achieve goals based on a foundation of knowing and valuing oneself" (Field & Hoffman, 1994, p. 164) and as "acts as the primary casual agent in one's life and making choices and decisions regarding one's quality of life free from undue external influence or interference (Wehmeyer, 2001, p. 24). Self-determination skills make an

individual more engaged in goal-directed behavior (Field, Martin, Miller, Ward, & Wehmeyer, 1998), and they can evolve into self-awareness, self-advocacy, self-esteem, self-regulation, problem-solving, and decision making (Agran, Blanchard, Wehmeyer, & Hughes, 2001; Allen, Smith, Test, Flowers, & Wood, 2001; Hughes, 1996; Kennedy & Haring, 1993; Snyder & Shapiro, 1997; Valenzuela & Martin, 2005; Van Reusen & Bos, 1990), which may affect life activities during the adulthood. Therefore, self-determination skills have long been emphasized as a part of the curriculum for transition of students with disabilities, including learning disability.

Findings from recent longitudinal studies support this idea. Successful individuals with learning disabilities were reported to be able to recognize their strengths and manage their disability-related negative effects (Goldberg et al., 2003). Another study exploring university graduates with learning disabilities (Madaus, 2006) showed similar results. Those who did find their strengths related to their jobs used a variety of strategies, such as goal-setting, time management, and punctuality. Madaus (2006) asserted that these successful strategies in the workplace were closely linked to high levels of self-determination.

Many studies have tried to address how individuals with learning disabilities could enhance their self-determination skills in school environments (Field, Martin, Miller, Ward, & Wehmeyer, 1998; McGahee, Mason, Wallace, & Jones, 2001; Pierson, Carter, Lane, & Glaeser, 2008; Test, Karvonen, Wood, Browder, & Algozzine, 2000; Wehmeyer & Schwartz, 1997, 1998). Most of these studies showed an immediate impact of enhanced self-determination skills, but did not show long-term effects of instruction for self-determination skills enhancement (Test et. al., 2004). Also, teachers felt confused about teaching self-determination skills by citing a lack of related training, curricula, and

a less supportive administrative environment (Carter, Lane, Pierson, & Stang, 2008; Johnson & Sharpe, 2000; Mason, Field, & Sawilowsky, 2004; Wehmeyer, Agron, & Hughes, 2000). Putting instruction of self-determination skills into the curriculum, and writing self-determination goals in IEPs was not common at the secondary level (Agran, Snow, & Swaner, 1999; Mason et al., 2004; Test et al., 2004; Wehmeyer et al., 2000).

Communication skills

Adjustment difficulties that impact employment and employability exist among young adults with learning disabilities (Gonzalez, 2009). Students with learning disabilities tend to have lower levels of reading, writing, calculating, self-determination, self-esteem, or having interpersonal/social skills, which may impact their employment, and employability and its continuity (Bowman-Kruhn & Wirths, 1999; Durlak, Rose, & Bursuck, 1994; Gonzalez, 2009; Vaughn, Sinagub, & Kim, 2004).

Many previous studies on developing job-related skills for transition-aged students or young adults with learning disabilities have focused on interpersonal/social skills (Gozalez, 2009; Vaughn, Sinagub, & Kim, 2004). According to them, individuals with learning disabilities may be less equipped with social skills and resources, and thus have lower levels of employment (Gonzalez, 2009; McDonald et al., 2005; Polloway, Smith, & Patton, 1984; Wagner et al., 2005). Also, studies on employers' perspectives on hiring young adults with learning disabilities also found that interpersonal/social skills of individuals with learning disabilities were important for job interviewing, conducting job skills, and having interactions with supervisor or peers without disabilities (Clement-Heist, Siegel, & Gaylord-Ross, 1992; Mathew, Whang, & Fawcett, 1982; Okolo & Sitlington, 1988). Early employment experiences were also emphasized as a way of

improving job-related communication skills and behaviors (Benz, Lindstrom, & Yovanoff, 2000; Freeman & Wise, 1982).

FAMILY INVOLVEMENT

Despite the importance of family involvement in transition practices and IDEA mandates of families' decision-making roles in education planning, little research exists regarding the role of families in transition practices for transition-aged youth with learning disabilities (Keogh, 1999; Morningstar, Wehmeyer, & Dove, 2008; Wandry & Pleet, 2003). In regard to family-related issues in transition practices for youth with learning disabilities, Morningstar and her colleagues (2008) pointed out two issues affecting transition-aged students with learning disabilities and their families, which were family and parent expectations about transition planning, and family roles in development of students' self-determination.

Family and parent expectations about transition planning

Parent and family's expectations about post-school outcomes matter. Many studies (Gerber, Ginsberg, & Reiff, 1992; Patrikakou, 1996; Spekman et al., 1992; Thompson et al., 2001) also support the assertion that parental expectations positively affect post-school outcomes and academic achievement of students with learning disabilities, and schools should support family involvement. Despite the emphasis of parental expectations in transition planning, interview results from the National Longitudinal Transition Study-2 (NLTS2) showed parents' limited involvement in transition planning for their youth with learning disabilities; 60% of transition-aged youth with learning disabilities and 50% of their parents took part in meetings to develop students' transition goals and planning (Levine, 2003).

However, parental expectations about their children's transition outcomes did not always line up with school-identified transition goals listed in IEP documents (Thompson et al., 2001). Significant gaps existed in expectations about transition planning among parents, students and schools raised issues of transition practices and secondary special education in public school systems. While parents identified more intensive services for transition practices and more outside agency involvement in transition planning, the involvement of outside agencies was limited and caused parents and students with learning disabilities to perceive transition practices led by schools to be less satisfying.

Family roles in development of students' self-determination

As previously mentioned in student development, self-determination is important for successful transition and post-school outcomes of transition-aged youth with learning disabilities. When it comes to family roles in developing self-determination of adolescents with learning disabilities, renegotiating and balancing the relationship between transition-aged youth with learning disabilities and family members became complex (Hanley-Maxwell et al., 1995; Turnbull & Turnbull, 1997). Regardless of disability, every adolescent has to go through the process of individuation and to gain more independence from his/her family care and support (Morningstar, Wehmeyer, & Dove, 2008; Wehmeyer, 2003). However, those who were more dependent upon family support and felt emotional bonds with their families, such as adolescents with learning disabilities, felt the transition process and adolescence/adulthood period was difficult, confusing, and complex to get through (Gallivan-Fenlon, 1994; Hanley-Maxwell et al., 1995; Turnbull & Turnbull, 1997; Ward, 1988).

Regarding self-determination development of transition-aged students with learning disabilities within family contexts, researchers stated that professionals should

lead students to express and to assess their preferences, strengths, and weaknesses, on their own (Brotherson, Cook, Cunconan-Lahr, & Wehmeyer, 1995; Morningstar et al., 1995). Therefore, more family collaboration with professionals was emphasized to develop students' autonomy and independence at earlier stages (Morningstar, Wehmeyer, & Dove, 2008).

Transition Outcomes and Emerging Issues in Transition Practices among Youth with Learning Disabilities

This section summarizes recent transition outcome studies and analyzes emerging issues in transition practices and research. Major headings are (a) methodology issues in transition research, (b) transition outcomes of with youth learning disabilities in quantitative research, (c) transition outcomes of youth with learning disabilities in qualitative research, and (d) collaboration issues between special education and vocational rehabilitation.

METHODOLOGY ISSUES IN TRANSITION RESEARCH

Transition outcome research in special education

Transition outcome research in special education and vocational rehabilitation fields can be divided based on primary research methodologies, such as quantitative and qualitative. In special education, quantitative studies consist of a majority of special education research including transition-related studies (Brantlinger et al., 2005; Odom et al., 2005). This academic trend has been influenced by major policy initiatives of emphasizing effectiveness and accountability (e.g. NCLB) during the last decades. In terms of transition outcome research employing quantitative methodologies, the *National Longitudinal Transition Study-2* (NLTS2) has been considered one of the most

comprehensive national reports (Newman, Gameto, Garza, & Levine, 2005). The NLTS-2 report included transition age youth with disabilities age ranging from 19 to 23 and having graduated from high school up to 6 years ago (Sanford et al., 2011).

On the other hand, there were arguments that qualitative research has contributed to special education by describing people's perspectives and phenomena in education fields. Despite the possibility of objectivity and overgeneralization in qualitative studies, qualitative researchers asserted that qualitative studies provided specific and detailed information about contexts and individuals (Brantlinger et al., 2005). Qualitative studies on transition outcomes of youth with learning disabilities dealt with various topics, such as predictors of success during the adulthood (Field, Sarver, & Shaw, 2003; Gerber, Ginsberg, & Reiff, 1992; Goldberg et al., 2003; Raskind et al., 1999), transition planning assessment (Clark, 1996; Sitlington, 1996), and experiences in the workplace and post-secondary educational institutions (Gerber, Reiff, & Ginsberg, 1996; Hadley, 2007; Hicks-Coolick, & Kurtz, 1997; Lindstrom & Benz, 2002; Madaus, Gerber, & Price, 2008).

Transition outcome research in vocational rehabilitation

In rehabilitation academia, there is not one specific representative longitudinal transition outcome research like NLTS-2. Instead, the National Council on Disability (2008) published a quantitative report on outcomes for transition-age youth. The report, named as *The Rehabilitation Act: Outcomes for Transition-Age Youth*, comprehensively analyzed obstacles to successful transition for youth with disabilities and proposed suggestions for VR transition services. Also, scholars have analyzed the nationally distributed RSA data, which contained a variety of information on those who contacted rehabilitation agencies. RSA data research on transition outcome among youth with

learning disabilities has steadily increased (Gonzalez, Rosenthal, & Kim, 2011; Oswald, 2010; Sulewski, Zalewska, & Butterworth, 2012).

Despite this quantitative-oriented tendency in rehabilitation academia, some researchers pointed out several limitations in quantitative research. Bolton and Parker (1987) listed skeptical attitudes toward quantitative studies, as (a) the use of unfamiliar language, (b) practitioners' remote feelings about presentation of statistical data, (c) researcher's failure in translating their findings into easy-to-understand implications for practitioners. Also, Enright and Szymanski (2010) asserted that quantitative researchers should avoid small convenience samples which might lead to overgeneralization. Also, they emphasized the importance of representative samples in quantitative research.

Regarding qualitative research in vocational rehabilitation, several researchers (Denzin & Lincoln, 2005; Hanley-Maxwell, Hano, & Skibington, 2007) proposed suggestions for qualitative researchers. They noted that qualitative studies should include advocacy for social justice, critical examinations of policies, understanding of contexts-involved issues (e.g. politics, community perceptions, power dynamics and cultural considerations) by using the characteristics of qualitative methods which put value on human experiences and perspectives. Furthermore, they emphasized that qualitative research needs to lead to practice-based issues in social change for individuals with disabilities.

Interdisciplinary transition outcome research

Even though the transition process is a collaborating work between special education and vocational rehabilitation services, most transition outcome research showed limited perspectives from each field. From this perspective, the recent transition outcome report made by the Government Accountability Office (GAO) (2012) showed a

good example of interdisciplinary research on transition outcomes of youth with disabilities. GAO selected various organizations involved in transition practices (e.g. State Department of Education, Bureau of Vocational Rehabilitation Services, a Workforce Investment Act One-stop Center, non-profit organization serving transition age youth with disabilities, transition specialists and coordinators, representatives from higher education institutions, parents and students with disabilities, and etc.) and interviewed individuals involved in the transition process for youth with disabilities.

As explained above, three major national reports, including the NLTS-2, National Council on Disability, and GAO dealt with transition outcomes of youth with disabilities from different perspectives. Also, many quantitative and qualitative studies explored the transition outcomes of youth with learning disabilities. Therefore, see table 2 for comparison of features listed in each study.

Table 2.
Transition Outcomes of Youth with Learning Disabilities in Major Transition Studies

Author (Year)	Sanford et al. (2011)	National Council on Disability (2008)	GAO (2012)	Gonzales (2009)	Goldberg et al. (2003)
Method	Quantitative	Quantitative	Qualitative	Quantitative	Qualitative
Participants	4650 Youth with disabilities who were 13 to 16 years old and receiving SPED services in grade 7 or above on Dec 1, 2000.	Former consumers of VR transition services, parents, transition professionals from federal Department of Education (ED), Department of Labor (DOL), state and local VR agencies, and local education agencies.	Transition professionals in federal and state agencies in 5 states.	30,265 consumers with LD between the age of 16 and 24 from the RSA-911 data in the year of 2007.	41 individuals with LD who attended the center more than 20 years ago.
Purpose	Post-high school outcomes of young adults with disabilities up to 6 years after high school. (NLTS-2)	Outcomes for Transition-age Youth with disabilities.	Transition outcomes of youth with disabilities.	To identify consumer demographic characteristics to predict the likelihood of successful and unsuccessful employment outcomes for VR consumers with LD	To trace the lives of adults with LD and explore their success attributes.

Table 2.
Transition Outcomes of Youth with Learning Disabilities in Major Transition Studies (continued)

Author (Year)	Sanford et al. (2011)	National Council on Disability (2008)	GAO (2012)	Gonzales (2009)	Goldberg et al. (2003)
Findings	1. Employment status differed by the completion of high school, the level of household incomes. 2. The mean average hourly wages differed by gender. 3. Postsecondary enrollment differed by the level of household incomes. 4. Postsecondary school completion rate of youth with disabilities was lower than that of similar-age peers in the general population.	1. Increasing youth served VR agencies. 2. Collaboration issues among federal agencies. 3. Need for rigorous evaluation on effect of specific transition service delivery practices. 4. Isolation in transition services among youth with learning disabilities, Asperger's Syndrome, and ADHD.	1. Difficulty in transition program access – difficult navigating multiple programs, delays in service, limited access, lack of adequate information, inadequate preparation for postsecondary education or the workforce. 2. Coordination issues – federal agencies' complex transition practices, lack of government-wide strategy, absence of assessing the effectiveness of coordination.	1. Public support (e.g. SSDI, SSI) was the most influential predictor of successful employment among youth with LD. 2. Depending on gender and ethnicity, employment outcomes differed. 3. Job placement enhanced the likelihood of successful employment outcomes among youth with LD.	1. Self-awareness, taking a leading role, successful strategies for perseverance, goal-settings, emotional coping strategies and effective social support systems were proven as success attributes for individuals with LD.

TRANSITION OUTCOMES OF YOUTH WITH LEARNING DISABILITIES IN QUANTITATIVE RESEARCH

The national longitudinal transition study 2 (NLTS2) reports

In regard to employment outcomes and related experiences of transition-aged youth with learning disabilities, the *National Longitudinal Transition Study 2* (NLTS-2) is a major study. Data in the NLTS-2 includes extensive information on the employment outcomes and related experiences of transition age youth with disabilities and their parents, as they enter into adulthood (Madaus, Gerber, & Price, 2008; Wagner, Newman, Gameto, Garza, & Levine, 2005). Out of various transition outcome studies analyzing NLTS-2 data, *The Post-high School Outcomes of Young Adults with Disabilities up to 6 Years after High School* presented by Sanford and his colleagues (2011) and submitted to the Department of Education was summarized in this part. Major headings are (a) employment and wages, (b) postsecondary education, and (c) engagement in education, employment, or training for employment.

Employment and wages

Sanford et al. (2011) showed that the employment status of youth with disabilities varied depending on disability category. Transition age youth with learning disabilities were more likely to have a paid job (79%) compared to those with other disabilities (e.g. visual impairments with 40%, autism with 45%, and mental retardation with 46%). And, the employment status was differentiated by the completion of high school, but not by the number of years since leaving high school. In terms of demographic differences in employment, this study reported that the employment status differed depending on the level of household income, but race/ethnicity or gender did not affect significant differences in employment status.

Regarding the mean average hourly wages in 2007, transition age youth with disabilities received $9.50, compared to $13.20 in the general population. Youth with learning disabilities were reported to receive higher hourly wages ($9.60) than those with mental retardation ($7.60). And, the mean average hourly wage did not differ by the completion of high school or the number of years since leaving high school. In contrast to the employment status, the mean average hourly wage showed significant differences depending on gender. Male youth with disabilities earned more than females ($9.90 vs. $8.40). However, the level of household income was not statistically significantly different in mean average hourly wage.

Postsecondary education

Sanford et al. (2011) reported that 55% of youth with disabilities had continued on to postsecondary education school, compared to same-age peers in the general population with 62%. Youth with disabilities were more likely to be enrolled in 2-year or community colleges (37%), compared to vocational schools (28%) or 4-year colleges or universities (15%). In contrast, transition age youth in the general population were more likely to be enrolled in a 4-year colleges or university (37%) than those with disabilities (15%). In the case of youth with learning disabilities, their enrollment at any postsecondary school (61%) was higher than those with mental retardation (28%) and with emotional disturbances (45%). In terms of demographic differences in postsecondary enrollment, Sanford et al. (2011) reported that the postsecondary enrollment differed depending on the level of household income, but race/ethnicity or gender did not affect significant differences in postsecondary enrollment.

Regarding postsecondary school completion, the postsecondary completion rate of transition age youth with disabilities (38%) was lower than that of similar-age peers in

the general population (51%). Rates of completion did not differ significantly by disability category, household income, race/ethnicity, or gender.

Engagement in education, employment, or training for employment

Sanford et al. (2011) included a separate section of engagement in education, employment, or training for employment among transition age youth with disabilities. Compared to same-age peers in the general population (95%), youth with disabilities (85%) were reported to be less engaged in education, employment, or training for employment. When it comes to disability differences, youth with learning disabilities (89%) were more likely to be engaged than those with mental retardation (69%), autism (69%), multiple disabilities (68%), and deaf-blindness (69%).

The engagement in education, employment, or training for employment was differentiated by the completion of high school, but not by the number of years since leaving high school. In terms of demographic differences in engagement, Sanford et al. (2011) showed that engagement differed depending on the level of household income, but race/ethnicity or gender did not affect significant differences in engagement.

National council on disability's report

In 2008, the National Council on Disability published a report titled *The Rehabilitation Act: Outcomes for Transition-Age Youth*. Compared to the NLTS-2 report, this study reviewed transition practices from the perspective of the rehabilitation system. The National Council on Disability's report on transition outcomes included a comprehensive literature review and findings from a series of structured interviews with former consumers of VR transition services, parents, and transition professionals from

federal Department of Education (ED), Department of Labor (DOL), state and local VR agencies, and local education agencies.

According to the National Council on Disability's report (2008), the number of transition age youth served by VR agencies has increased over the past five years. However, VR services were serving only a few youth with disabilities who could access transition services. In terms of collaboration among agencies, this report showed negative findings. Despite VR agencies' collaborative efforts with other federal agencies, several challenges still existed, such as a lack of personnel, service unit credit policies, and dedicated transition units in local rehabilitation agencies. In addition, this report emphasized a rigorous evaluation of specific transition service delivery practices on transition age youth with disabilities.

In the case of youth with learning disabilities, the National Council on Disability's report (2008) pointed out the limitations of Order of Selection in the Rehabilitation Act. The Order of Selection was made due to limited financial resources in the rehabilitation system, but it made some youth with mild disabilities (e.g. learning disabilities, Asperger's Syndrome, ADHD) be isolated in receiving appropriate transition services. To overcome this challenge, some states (e.g. Alabama) recently developed specialized services for youth with learning disabilities or ADHD including college preparation programs and collaboration projects with other federal agencies.

RSA data studies

Compared to the *National Longitudinal Transition Study-2* (NLTS2; 2011), there was less research on demographic variables predicting postsecondary education outcomes compared to predicting employment outcomes among youth with disabilities in the VR system (Migliore et al., 2012). Out of several RSA data studies, Gonzales' study (2009) was the representative one focusing on transition youth with learning disabilities.

Individuals with learning disabilities in the VR services

According to Gonzales (2009), individuals with learning disabilities had not received vocational rehabilitation services, until the Rehabilitation Services Administration (RSA) extended vocational rehabilitation services to individuals with learning disabilities in 1981 (Sheldon & Prout, 1985). Therefore, there was still a gap between the number of students with learning disabilities in special education and the number of service recipients with learning disabilities in federal/state vocational rehabilitation services.

According to the most recent annual report to congress (U. S. office of Special Education and Rehabilitation Services, 2007), the most common disability category in special education during the 2006-2007 school year was specific learning disabilities (44.6%). However, a percentage of consumers with specific learning disabilities shown in the 2007 RSA 911 dataset was small (5.0%). Therefore, some researchers pointed out that individuals with specific learning disabilities were less likely to receive vocational rehabilitation services compared to other visible disability groups, such as physical impairments or moderate/severe developmental disabilities (Dowdy, 1996; Gonzalez, 2009; Mellard & Lancaster, 2003).

Predictors of transition outcomes among youth with learning disabilities

Gonzales (2009) analyzed the RSA data to explore how variables predict transition outcomes among youth with learning disabilities by using decision tree modeling and logistic regression. According to Gonzales (2009), the most influential predictor of successful employment in decision tree model analysis was public support (e.g. SSDI, SSI). However, depending on gender or race/ethnicity, the predictive power of public support may be distorted. For example, either Caucasians or Hispanic women with associate's degree among those who received public support were more likely to experience successful employment. However, in case of African American men with high school diploma, the prediction may differ. In terms of VR service variables in predicting employment outcomes via logistic regression analysis, this study demonstrated that job placement enhanced the likelihood of successful employment outcomes among most of the homogeneous end groups.

Other quantitative studies

The existing empirical studies dealing with transition services for youth with learning disabilities are few and available literature tends to view transition outcomes happening shortly after graduating from high school and entering the workforce (Madaus, Gerber, & Price, 2008). This section summarizes findings of several quantitative studies on transition outcomes among youth with learning disabilities.

Disclosure of disability and job accommodation requests

Students with learning disabilities attending high school receive public special education services mandated by the Individuals with Disabilities Education Act (IDEA). When students with learning disabilities are transitioning into adulthood, they may also be impacted by Section 504 of the Rehabilitation Act and the Americans with Disabilities

Act (ADA) of 1990, which requires individuals with disabilities to self-disclose their disability and their subsequent accommodation requests (Gerber & Price, 2003; Madaus, Gerber, & Price, 2008; Stodden, Jones, & Chang; 2002; Wolanin & Steele, 2004).

Despite responsibility for self-disclosure and accommodation requests, many individuals with learning disabilities were reported to have limited knowledge about the Americans with Disabilities Act (ADA) of 1990 (Gerber & Price, 2007; Madaus, 2006; Vogel & Adelman, 2000; Witte, 2001), to not know how to request their rights in their work settings (Price et al., 2003), or to be hesitant to disclose their disability along with accommodation requests (Gerber & Price, 2003; Kakela & Witte, 2000; Price et al., 2003; Vogel & Adelman, 2000). In a survey of investigating employment outcomes of college graduates with learning disabilities, Madaus (2006) showed that many individuals with learning disabilities did not disclose their disability to an employer (45%), supervisor (34%), and coworker (46%). This tendency got more severe among young adults with learning disabilities than those with "visible" disabilities (e.g. visual, hearing, or orthopedic) (Cameto, 2005; ; Madaus, Gerber, & Price, 2008).

By explaining the importance of knowledge of the Americans with Disabilities Act, Madaus et al. (2008) also claimed, "Nondisclosure may be an appropriate decision; however, this decision should be made as part of an informed process, rather than out of fear of discrimination, or lack of knowledge about one's strengths, weaknesses, and legal rights." (pp. 152). It reminds educational professionals in secondary school settings of teaching students with learning disabilities how to protect their civil rights during adulthood.

Postsecondary education

In the 2000's, postsecondary education became important in transition planning for transition-aged students with learning disabilities. More than eighty percent of high school students with disabilities showed their interest in putting postsecondary education in their transition goals (Cameto, Levine, & Wagner, 2004), because postsecondary education was considered to be influential in increasing earnings (Marcotte el al., 2005). Accordingly, the number of students with learning disabilities entering college has increased (Cummings, Maddux, & Casey, 2000; Kavale & Forness, 1996; Levinson & Ohler, 1998; McGuire, 1997). Likewise, postsecondary education becomes an important transition preparation path as well as a vocational rehabilitation service for transition-aged students with disabilities.

There are several empirical studies exploring postsecondary education experiences of students with learning disabilities or professionals. In a study of surveying college service coordinators, college students with learning disabilities were reported to have limited self-advocacy skills. Also, college service coordinators showed their dissatisfaction with the accommodation-related information provided by documentation they received from high school (Janiga & Costenbader, 2002). Levinson and Ohler (1998) also had similar findings. According to them, college students with learning disabilities suffered from differences in educational requirements between high school and college settings (e.g. class size, testing accommodations, grading approaches, and study requirements).

These circumstantial changes led researchers to explore appropriate transition services for young adults with learning disabilities who want or are already receiving postsecondary education services. Because postsecondary education is not under the

influence of the Individuals with Disabilities Education Act (IDEA) of 2004, any related professionals (e.g. vocational rehabilitation counselor in charge of transition planning, college service coordinator, high school teacher) need to follow the regulations of the Americans with Disabilities Act (ADA) of 1990 and the Section 504 of the Rehabilitation Act when providing transition services related to postsecondary education for individuals with learning disabilities. Also, programs to educate faculty and peers in postsecondary educational settings were also recommended among researchers (Dowrick, Anderson, Heyer, & Acosta, 2005).

TRANSITION OUTCOMES OF YOUTH WITH LEARNING DISABILITIES IN QUALITATIVE RESEARCH

Government accountability office (GAO)'s report

In 2012, the Government Accountability Office (GAO) published a comprehensive report on transition outcomes of youth with disabilities, after conducting in-depth interviews with professionals across the relevant agencies dealing with transition planning and services. This report showed negative transition outcomes of youth with disabilities, and focused more on each federal agencies' roles and their coordination with other federal agencies.

Through the qualitative data, the GAO report (2012) listed several challenges related to transition program access, such as difficulty navigating multiple programs, delays in service, limited access to transition services, lack of adequate information and awareness of options, and inadequate preparation for postsecondary education, or the workforce. In terms of coordination of transition activities, this report also stated problems as follows: (a) federal agencies on special transition activities and its complexity, (b) lack of government-wide strategy or framework for coordinating

transition services, and (c) absence of assessing the effectiveness of coordination efforts. Based on these results, this report proposed a federal interagency transition strategy including compatible policies and procedures, methods of increasing awareness among students, families, and services providers, and ways of assessing the effectiveness of coordination efforts among agencies.

Because the GAO report dealt with general issues of transition services, it did not talk about themes involved with individuals with learning disabilities. The only remark on transition services for students with learning disabilities in the GAO report was that students with invisible disabilities including learning disabilities were more likely to experience limited service options or gaps in transition service.

California's 20-year longitudinal study

The Frostig Center in Pasadena, California conducted a qualitative longitudinal study to investigate predictors of success in individuals with learning disabilities. Goldberg and his co-workers at the Frostig Center (2003) traced the lives of adults with learning disabilities who attended the center more than 20 years ago. After having direct interviews with 41 individuals with learning disabilities, they listed major success attributes among individuals with learning disabilities as follows. First, self-awareness came out as one of the attributes. Individuals with disabilities with success were able to differentiate their disability from their ability and it affected their sense of self and well-being in a positive way. Second, successful individuals with learning disabilities took a leading role at work, in community, peer groups, and their families. In contrast, unsuccessful individuals with learning disabilities showed passivity in decision-making or stuck to rigidity despite its ineffectiveness. Third, successful individuals with learning disabilities demonstrated various successful strategies for perseverance, which was

contrasted with unsuccessful individuals. Furthermore, goal setting and the presence of effective social support systems were proven to affect successful life activities of individuals with learning disabilities positively.

Goldberg and his colleagues (2003) stressed the unique features of this study, compared to previous quantitative studies. Throughout the detailed qualitative data, this study noted that success attributes of individuals with learning disabilities starting from childhood remain relatively stable during the life span. Also, the qualitative data in this study allowed researchers to understand how life stress of individuals with learning disabilities changed with help of mentors, supportive family and social relationships, and emotional coping strategies, which have been overlooked in quantitative studies. In their discussion, Goldberg and his colleagues (2003) also pointed out the limitations of intervention-oriented trends in the field of learning disabilities by showing that success attributes (e.g. self-awareness, perseverance, goal settings, effective social support systems, and emotional coping strategies) were more predictive of success than academic skills.

Other qualitative studies

Employment experiences

Compared to quantitative studies, most qualitative studies regarding employment outcomes of transition age youth with learning disabilities focused more on describing emergent issues, challenges, or strategies in a context of the workplace. In an ethnographic study exploring the life experiences of adults with learning disabilities, Shessel and Reiff (1999) found that adults with learning disabilities struggled with reading forms and legal papers or with interpreting written information in the workplace.

Also, their visual-spatial problems made them constantly get lost and be late for their job. Consequently, many individuals with learning disabilities experienced embarrassment and frustration. According to Shessel and Reiff (1999), repeated frustrating experiences based upon limited ability of receiving information in the workplace led individuals with learning disabilities to have depression, anxiety, and low self-esteem. And, these issues negatively affected academic activities and work lives of individuals with learning disabilities during adulthood.

Price and her colleagues (2003) also conducted a similar qualitative study of employment experiences of 25 individuals with learning disabilities aged 19 to 32. However, this study added findings of job acquisition experiences and employer experiences in the workplace. In terms of job acquisition, none of the participants used professionals, teachers, or rehabilitation counselors to achieve their first jobs. Instead, they relied more on family members and friends during the job acquisition procedures. This tendency of not using possible VR services and other resources among individuals with learning disabilities was closely linked to little use of employment accommodations under the ADA.

Also, regarding employer perceptions about hiring individuals with learning disabilities, the most frequent theme was self-disclosure (Price et al., 2003). Participants' reactions toward self-disclosure in the workplace varied. Some of them did not disclose their disability and request job accommodations, others did (but most of them did not in the first place). And, some employers showed no reactions to employee's self-disclosure, but one employer reported that he/she did not want to know about employee's disability. These findings helped to illustrate the complexity of workplace environments in which employees with learning disabilities work.

Due to lack of qualitative literature on transition outcomes of youth with learning disabilities, there is little qualitative research on specific populations (e.g. women, African American, and Hispanic). There was one article about career development of women with learning disabilities. Lindstrom and Benz (2002) conducted a case study of 6 young women with learning disabilities who worked in various areas. The authors found out that young women with learning disabilities were more likely to be interested in stability of employment and clarity of career goals. And, based on their findings, they found five factors which affected successful career development for women with learning disabilities: (a) individual motivation and personal determination, (b) family support and advocacy, (c) career exploration opportunities, (d) vocational training, and (e) supportive workplace environments. Regarding roles of professionals, this study showed that parents and employers helped successful women with learning disabilities to "think through the myriad of issues surrounding the transition from adolescence into independence" (pp. 80).

Post-secondary education experiences

As more transition age youth with learning disabilities receive post-secondary education services, the number of qualitative studies exploring detailed experiences of college students with learning disabilities has also increased. Trojano (2003) found several elements of 'self-style' in college lives of students with learning disabilities, after conducting in-depth interviews with students. This study noted that each college student with learning disabilities had unique identity development issues. Also, in the other study of investigating the individualized course-specific strategy instruction (Allsopp, Minskoff, & Bolt, 2003), the use of individualized strategies was proven effective among

college students with learning disabilities. In other words, individualized approaches to supporting college lives of students with learning disabilities mattered.

In terms of ideas for improvement among college lives of students with learning disabilities, Trojano (2003) proposed two major ideas, which included (a) academic advisors, student affairs professionals and on-campus student counselors need to show their interest in each student's needs and to think about the ways of services in a creative way, and (b) admission officers should be aware of conditions and assist students when deciding the level of support services provided by the college or university. Compared to focusing on administrative factors in Trojano's study, Allsopp and his colleagues (2003) emphasized the importance of active and supportive relationships between instructor and students with learning disabilities, which might lead to students' academic success.

CHAPTER 3

METHOD

The purpose of this study is to (a) examine demographic variables and VR program services as predictors of employment outcome at closure for transition-aged students with learning disabilities by using the Rehabilitation Services Administration data file (RSA-911), (b) examine statistical differences on weekly earnings for White, African American, and Hispanic male and female transition-aged students with learning disabilities, (c) examine demographic variables and VR program services as predictors of the level of education at closure for transition-aged students with learning disabilities. This study will use the annually compiled Rehabilitation Services Administration data file (RSA-911), which included data of every individual with disabilities who contacted or received services through the state/federal VR system (RSA, 2008). This study used the RSA-911 data gathered in the year of 2012.

Research Design and Research Questions

This study will use a correlational research design (Shadish, Cook, & Campbell, 2002), and this study will use logistic regression and multiple regression (Migliore et al., 2012) to investigate relationships between predictor variables and criterion variables of transition-aged youth with learning disabilities.

Research questions are listed below:

- *Question* 1: Which demographic variables and VR program services predict employment outcome at closure for transition-aged youth with learning disabilities?
- *Question* 2: Are White, African American, and Hispanic males and female transition-aged youth with learning disabilities statistically different on weekly earnings?
- *Question* 3: Which demographic variables and VR program services predict the level of education at closure for transition-aged youth with learning disabilities?

Participants

The data for this study was extracted from the Rehabilitation Services Administration data file (RSA-911) for the fiscal year (FY) 2012. For the research questions of this study, this study used the following criteria: (a) aged 15 to 18 years at time of application, (b) had learning disability as a primary disability, (c) did not have integrated employment at application, and (d) contacted VR agencies and received VR services. Participants satisfying above criteria were extracted from the entire dataset in the fiscal year of 2012. The respective number of transition age (aged from 15 to 18) youth with learning disabilities selected as participants was 25,218, which constitutes 4.4 % of the entire population in the RSA 911 database in 2012 (N = 579,283). The number of participants was 15,437 with males representing 61.2 % (n = 15,437) and females representing 38.8 % (n = 9,781).

Source of Data and Data Collection

The RSA-911 national data for fiscal year 2012 is public and was obtained at no cost through Rehabilitation Services Administration (RSA) in the U.S. Department of Education. The RSA-911 data file was annually collected from all state and federal vocational rehabilitation agencies in the U.S. And, the RSA-911 data included all customers who contacted or received services from the state vocational rehabilitation program each fiscal year.

The RSA-911 data (RSA, 2008) included data identifying demographic, service, and outcome details for each consumer who had exited from the federal/state VR program each year. A numeric code was used to document demographic, service, and outcome variables from the initial referral through case closure procedures. These

collected statistics were aggregated into a single RSA-911 data file every year and got distributed to the public.

This study used the RSA-911 reporting manual for a reference tool of variables. The RSA-911 reporting manual includes guidelines and assigned definitions of all demographic, service, and outcome variables for consistency of VR service delivery (RSA, 2008).

Variables

Variables in the RSA-911 national data were categorized into demographic, VR services, and outcome variables. The definitions of variables followed the RSA-911 Case Service Reporting Manual (2008).

PREDICTOR VARIABLES

Demographic variables

1. Gender (0 = male and 1 = female; categorical variable).
2. Age at application and closure (0 = age from 15 – 18 years and 1= age from 19 – 24 years; categorized variable).
3. Race/ethnicity (1 = White, 2 = African American, 3 = American Indian, 4 = Asian, 5 = Native Hawaiian or other Pacific Islander, 6 = Hispanic; categorical variable).
4. Level of education at application (0 = no formal schooling, 1 = elementary education (grades 1-8), 2= secondary education, no high school diploma (grades 9-12), 3 = special education certificate of completion/diploma or in attendance, 4 = high school graduate or equivalent certificate (regular education students), 5 = post-secondary education, no degree, 6 = associate

degree or vocational/technical certificate, and 7 = bachelor degree, 8 = master's degree or higher ; categorical variable).

5. Employment status at application (1 = employed without supports in integrated setting, 2 = extended employment, 3 = self-employment (except BEP), 4 = state agency-managed business enterprise program (BEP), 5 = employment with supports in integrated setting, 6 = not employed: student in secondary education, 7 = not employed: all other students, 8 = not employed: trainee, intern or volunteer, and 9 = not employed ; categorical variable).
6. Hours worked in a week at application (continuous variable).
7. Weekly earnings at application (continuous variable).
8. Primary source of support at application and closure (1 = personal income, 2 = family and friends, 3 = public support, and 4 = all other sources; categorical variable).
9. Living arrangement (1 = private residence, 2 = community residential or group home, 3 = rehabilitation facility, 4 = mental health facility, 5 = nursing home, 6 = adult correctional facility, 7 = halfway house, 8 = substance abuse treatment center, 9 = homeless/shelter, and 10 = other; categorical variable).
10. SSI or SSDI at application and closure (0 = no, and 1 = yes; categorical variable).
11. Medical insurance at application and closure (0 = no, and 1 = yes; categorical variable).

VR service variables

1. Source of referral (1 = educational institutions (elementary/secondary), 2 = educational institutions (post-secondary), 3 = physician or other medical personnel or medical institutions, 4 = welfare agency, 5 = community rehabilitation programs, 6 = social security administration, 7 = one-stop employment/training centers, 8 = self-referral, and 9 = other resources; categorical variable).
2. Length of participation in the program (continuous variable).
3. Cost of purchased services (continuous variable).
4. Services provided (0 = not provided, and 1 = provided; categorical variable).

Regarding services provided, the RSA-911 Case Service Reporting Manual (2008) listed a total of 15 vocational rehabilitation services as follows: Assessment, Diagnosis and treatment, Vocational rehabilitation counseling and guidance, College training, Occupational training, On-the-job training, Basic academic remedial or literacy training, Job readiness training, Miscellaneous training, Job search assistance, Job placement assistance, On-the-job supports, Maintenance.

CRITERION/OUTCOME VARIABLES

1. Type of closure (1 = exited as an applicant, 2 = exited during or after a trial work experience/extended evaluation, 3 = exited with an employment outcome, 4 = exited without an employment outcome, after receiving services, 5 = exited without an employment outcome, after a signed IPE, but before receiving services, 6 = exited from an order of selection waiting list, and 7 =

exited without an employment outcome, after eligibility, but before and IPE was signed; categorical variable).

2. Employment status at closure (1 = employment without supports in integrated setting, 2 = extended employment, 3 = self-employment (except BEP), 4 = state agency-managed business enterprise program (BEP), 5 = employment with supports in integrated setting; categorical variable).
3. Weekly earnings at closure (continuous variable).
4. Level of education at closure (0 = no formal schooling, 1 = elementary education (grades 1-8), 2= secondary education, no high school diploma (grades 9-12), 3 = special education certificate of completion/diploma or in attendance, 4 = high school graduate or equivalent certificate (regular education students), 5 = post-secondary education, no degree, 6 = associate degree or vocational/technical certificate, and 7 = bachelor degree, 8 = master's degree or higher ; categorical variable).

Data Analyses

All statistical is analyzed by using the software package SPSS (Green & Salkind, 2007; Wagner, 2007).

DESCRIPTIVE STATISTICS

This study conducted descriptive analyses to examine overall information about predictor and outcome variables among 15 – 18 years of youth with learning disabilities. Included descriptive statistics are frequency, percent, mean, and standard deviation by gender and ethnicity.

ANALYSES OF VARIANCE (ANOVA)

For research question 2, this study examined the weekly earnings by using Analyses of Variance (ANOVA) to test for differences among transition-aged White, African American, and Hispanic males and females with learning disabilities. And, to investigate the differences between males and females within each White, African American, and Hispanic group and to examine the differences across each group, this study conducted Analyses of Variance (ANOVA).

LOGISTIC REGRESSION

Research question 1, which demographic variables and VR program services predict employment outcomes for transition-aged youth 15 – 18 years with learning disabilities? Research question 3, which demographic variables and VR program services predict the level of education at closure for transition-aged youth with 15 - 18 years with learning disabilities?

For research question 1 and 3, stepwise backward binary logistic regression using cross validation was performed for predictor and criterion/outcome variables in each

group (White, African American, and Hispanic males with learning disabilities and transition-aged White, African American, and Hispanic females with learning disabilities). The binary logistic regression using cross validation has been recommended across similar empirical studies to estimate a predictor variable's contribution while simultaneously taking other predictor variables into account, when criterion variables were categorical (e.g. employment status at closure, and postsecondary education level) (Chan, 2004; Katz, 1999; Migliore et al., 2012). Also, the reason for backward approach selection is that it allows low risk of discarding suppressor variables (Field, 2009; Migliore et al., 2012; Tabachnick & Fidell, 2001).

Cross validation was performed to examine consistency of results from two random group analyses (Mertler & Vannatta, 2001; Tabachnick & Fidell, 1989). For cross validation, each group is also randomly divided into two groups. In addition, data screening was conducted for the divided groups above to examine the existence of missing data, outliers, normality, linearity, and multicollinerity (Mertler & Vannatta, 2001; Tabachnick & Fidell, 1989).

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CHAPTER 4

RESULTS

This chapter presents the conducted data analyses to answer three research questions in regard to employment, weekly earnings, and post-secondary education outcomes for transition-aged youth with learning disabilities who contacted the state/federal vocational rehabilitation (VR) agency and participated in VR programs in the fiscal of 2012. The main purpose of this study was to examine demographic variables and VR program services as predictors of employment outcomes at closure, weekly earnings, and post-secondary education outcomes for transition-aged students with learning disabilities. Research questions were examined by the use of Statistical Package for the Social Sciences (SPSS) and their results are presented in the following sections.

Descriptive Statistics

This section provides descriptive statistics of demographic and VR service-related characteristics at application for the transition-aged youth with learning disabilities in the fiscal year of 2012. During the fiscal year of 2012, a total of 25,218 transition-aged participants with learning disabilities were included in the RSA-911 data file.

AGE AT APPLICATION, GENDER, AND RACE/ETHNICITY

Participants aged from 15 to 18 years when they contacted the VR agency and participated in the VR program, and the total number of participants was 25,218. While males accounted for 61.2% (n = 15,437), females consisted of 38.8% (n = 9,781). Table 3 describes that African Americans accounted for 22.9% (n = 5,764) followed by Caucasians, at 59.1% (n = 14,907). Hispanic represented 18.0% (n = 4,547), and

participants in other race/ethnicities such as American Indians or Alaska natives, Asians, and Native Hawaiian or other Pacific Islander were excluded due to a small percentage not big enough to compare differences.

Table 3

Gender and Race/Ethnicity

	n Male	n Female	%
White	9,094	5,813	59.1
African-American	3,528	2,236	22.9
Hispanic	2,815	1,732	18.0
Total	15,437	9,781	100.0

EMPLOYMENT STATUS AT APPLICATION

Table 4 on the following page shows how many participants were not employed at application by gender and ethnicity. Of 14,907 White participants, 84.3% (n = 13,021) were not employed, while 11.4% (n = 1,758) were employed without supports in an integrated setting. 92.4% of African American participants were not employed, and 92.8% of Hispanic participants were not employed at application.

Table 4

Employment Status at Application

	White		African American		Hispanic	
	n (%)		n (%)		n (%)	
	Male	Female	Male	Female	Male	Female
Employment w/o supports in integrated setting	1,042 (11.5%)	716 (12.3%)	235 (6.7%)	161 (7.2%)	176 (6.3%)	122 (7.0%)
Extended employment	4 (0.0%)	1 (0.0%)	0 (0.0%)	1 (0.0%)	2 (0.1%)	1 (0.1%)
Self-employment	3 (0.0%)	4 (0.0%)	1 (0.0%)	1 (0.0%)	1 (0.0%)	0 (0.0%)
Homemaker	3 (0.0%)	1 (0.0%)	0 (0.0%)	3 (0.1%)	1 (0.0%)	0 (0.0%)
Unpaid family worker	12(0.1%)	4 (0.0%)	3 (0.0%)	2 (0.0%)	4 (0.1%)	3 (0.2%)
Employed with supports in integrated setting	65(0.7%)	34 (0.6%)	23(0.7%)	13 (0.6%)	8 (0.3%)	8 (0.5%)
Not employed: student in secondary education	4,938	3,150	1,672	1,035	1,374	901
	(54.3%)	(54.2%)	(47.4%)	(46.3%)	(48.8%)	(52.0%)
Not employed: All other students	1,277	842	619	400	594	333
	(14.0%)	(14.5%)	(17.5%)	(17.9%)	(21.1%)	(19.2%)
Not employed: Trainee, intern or volunteer	28 (0.3%)	21 (0.4%)	8 (0.2%)	3 (0.1%)	9 (0.3%)	4 (0.2%)
Not employed: Other	1,722	1,043	967	617	646	360
	(18.9%)	(17.9%)	(27.4%)	(27.6%)	(22.9%)	(20.8%)
Total	9,094	5,813	3,528	2,236	2,815	1,732
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

Note. All other students mean students attending any kinds of educational institutions except for secondary education.

LEVEL OF EDUCATION AT APPLICATION

Table 5 presents the level of education at application by gender and ethnicity. 9.8% (n = 1,510) of the White participants had a high school degree or equivalent at application, whereas 73.3% (n = 11,320) had less than a high school education. And, 0.1% (n = 14) had post-secondary education degree.

In terms of African American participants, 68.6% (n = 3,956) had less than a high school education, 10.6% with a high school degree or equivalent at application, and 0.0% with post-secondary education degree.

60.5% (n = 2,749) of Hispanic participants had less than a high school education. 14.5% had a high school degree or equivalent at application, whereas 0.0% had post-secondary education degree.

Table 5

Level of Education at Application

	White		African American		Hispanic	
	n (%)		n (%)		n (%)	
	Male	Female	Male	Female	Male	Female
Special education	1,178 (13.0%)	762 (13.1%)	704 (20.0%)	449 (20.1%)	705 (25.0%)	396 (22.9%)
Less than high school	6,966 (76.6%)	4,354 (74.9%)	2,442 (69.2%)	1,514 (67.7%)	1,659 (58.9%)	1,090 (62.9%)
High school graduate	881 (9.7%)	629 (10.8%)	357 (10.1%)	254 (11.4%)	423 (15.0%)	238 (13.7%)
Associate degree	61 (0.7%)	62 (1.1%)	24 (0.7%)	18 (0.8%)	28 (1.0%)	8 (0.5%)
College or graduate degree	8 (0.0%)	6 (0.1%)	1 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)
Total	9,094	5,813	3,528	2,236	2,815	1,732
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

PRIMARY SOURCE OF SUPPORT

Regarding primary source of support at application, a majority of White participants (89.3%, n = 13,791) reported family and friends' income (See Table 6). 2.8% (n = 424) of the participants reported personal income as primary source of support followed by public support (2.9%, n = 451).

African American and Hispanic participants reported primary source of support in the same order. Family and friends' income comes first (87.1% in African American and 90.3% in Hispanic), public support (8.4% in African American and 5.9% in Hispanic), and personal income followed (2.7% in African American and 2.9% in Hispanic).

SOURCE OF REFERRAL AT APPLICATION

As presented in Table 7, the most likely source of referral at application was elementary/secondary educational institutions (85.2% in White, 87.6% in African American, and 87.6% in Hispanic) across all the ethnic groups. And, each ethnic group reported to have referral source from other sources (5.0% in White, 4.8% in African American, and 3.9% in Hispanic), self-referral (3.0% in White, 3.3% in African American, and 3.4% in Hispanic), and post-secondary educational institutions (3.0% in White, 2.6% in African American, and 4.3% in Hispanic) respectively.

Table 6

Primary Source of Support

	White		African American		Hispanic	
	n (%)		n (%)		n (%)	
	Male	Female	Male	Female	Male	Female
Personal income	257 (2.8%)	172 (3.0%)	100 (2.8%)	58 (2.6%)	80 (2.8%)	51 (2.9%)
Family & friends	8,448(92.9%)	5,343(91.9%)	3,090(87.6%)	1,932(86.4%)	2,539(90.2%)	1,566(90.4%)
Public support (SSI, SSDI, etc)	262 (2.9%)	189 (3.3%)	275 (7.8%)	207 (9.3%)	175 (6.2%)	91 (5.3%)
All other sources	106 (1.2%)	87 (1.5%)	55 (1.6%)	32 (1.4%)	20 (0.7%)	24 (1.4%)
Not known	21 (0.2%)	22 (0.4%)	8 (0.2%)	7 (0.3%)	1 (0.0%)	0 (0.0%)
Total	9,094 (100.0%)	5,813 (100.0%)	3,528 (100.0%)	2,236 (100.0%)	2,815 (100.0%)	1,732 (100.0%)

Table 7

Source of Referral at Application

	White		African American		Hispanic	
	n (%)		n (%)		n (%)	
	Male	Female	Male	Female	Male	Female
Elementary/secondary educational institution	8052 (88.5%)	5100 (87.7%)	3092 (87.6%)	1981 (88.6%)	2441 (86.7%)	1544 (89.1%)
Postsecondary educational institution	281 (3.1%)	189 (3.3%)	94 (2.7%)	58 (2.6%)	122 (4.3%)	72 (4.2%)
Community rehabilitation program	41 (0.5%)	17 (0.3%)	17 (0.5%)	16 (0.7%)	6 (0.2%)	8 (0.5%)
Self-referral	283 (3.1%)	178 (3.1%)	119 (3.4%)	74 (3.3%)	113 (4.0%)	40 (2.3%)
Other sources	437 (4.8%)	329 (5.7%)	179 (0.5%)	95 (4.2%)	118 (4.2%)	60 (3.5%)
Total	9,094 (100.0%)	5,813 (100.0%)	3,528 (100.0%)	2,236 (100.0%)	2,815 (100.0%)	1,732 (100.0%)

VOCATIONAL REHABILITATION SERVICES PROVIDED

The types of VR services provided for the participants are in Table 8. The most common VR service among male participants was vocational rehabilitation counseling and guidance (62.5 % in White, 69.6 % in African American, and 64.2 % in Hispanic), followed by assessment (58.1 % in White, 59.2 % in African American, and 64.6 % in Hispanic), job placement assistance (35.0 % in White, 45.3 % in African American, and 35.0 % in Hispanic), job search assistance (25.4 % in White, 28.7 % in African American, and 32.8 % in Hispanic), job readiness training (19.3 % in White, 30.2 % in African American, and 28.2 % in Hispanic), information & referral (21.4 % in White, 15.2 % in African American, and 22.9 % in Hispanic), college training (23.7 % in White, 11.4 % in African American, and 16.8 % in Hispanic), and diagnosis and treatment of impairments (17.3 % in White, 18.6 % in African American, and 23.8 % in Hispanic).

In case of female participants, the most common VR service was vocational rehabilitation counseling and guidance (60.7 % in White, 70.4 % in African American, and 67.4 % in Hispanic). And, assessment (58.2 % in White, 59.3 % in African American, and 65.6 % in Hispanic), job placement assistance (31.0 % in White, 41.0 % in African American, and 33.8 % in Hispanic), job search assistance (22.3 % in White, 24.7 % in African American, and 30.8 % in Hispanic), job readiness training (17.6% in White, 27.7 % in African American, and 28.1 % in Hispanic), information & referral (21.9 % in White, 15.2 % in African American, and 22.8 % in Hispanic), college training (28.1 % in White, 15.2 % in African American, and 20.2 % in Hispanic), and diagnosis and treatment of impairments (18.7 % in White, 20.1 % in African American, and 25.1 % in Hispanic) followed.

Table 8

Vocational Rehabilitation Serivces Provided

	White		African American		Hispanic	
	n (%)		n (%)		n (%)	
	Male	Female	Male	Female	Male	Female
Assessment	5,282 (58.1%)	3,384 (58.2%)	2,088 (59.2%)	1,326 (59.3%)	1,818 (64.6%)	1,137 (65.6%)
Diagnosis & treatment	1,571 (17.3%)	1,087 (18.7%)	656 (18.6%)	450 (20.1%)	671(23.8%)	434 (25.1%)
Vocational rehabilitation counseling & guidance	5,688 (62.5%)	3,528 (60.7%)	2,455 (69.6%)	1,574 (70.4%)	1,807 (64.2%)	1,167 (67.4%)
College training	2,155 (23.7%)	1,634 (28.1%)	401 (11.4%)	340 (15.2%)	472 (16.8%)	349 (20.2%)
Occupational training	1,213 (13.3%)	831 (14.3%)	327 (9.3%)	263 (11.8%)	577 (20.5%)	330 (19.1%)
On-the-job training	406 (4.5%)	222 (3.8%)	172 (4.9%)	103 (4.6%)	182 (6.5%)	88 (5.1%)
Basic academic training	242 (2.7%)	166 (2.9%)	139 (3.9%)	74 (3.3%)	115 (4.1%)	79 (4.6%)
Job readiness training	1,755 (19.3%)	1,023 (17.6%)	1,066 (30.2%)	620 (27.7%)	793 (28.2%)	487 (28.1%)
Miscellaneous training	1,217 (13.4%)	906 (15.6%)	556 (15.8%)	347 (15.5%)	318 (11.3%)	221 (12.8%)
Job search assistance	2,306 (25.4%)	1,295 (22.3%)	1,011 (28.7%)	553 (24.7%)	922 (32.8%)	533 (30.8%)
Job placement assistance	3,181 (35.0%)	1,804 (31.0%)	1,599 (45.3%)	916 (41.0%)	984 (35.0%)	585 (33.8%)
On-the-job supports	1,091 (12.0%)	646 (11.1%)	500 (14.2%)	316 (14.1%)	274 (9.7%)	144 (8.3%)
Maintenance	1,085 (11.9%)	784 (13.5%)	434 (12.3%)	283 (12.7%)	568 (20.2%)	294 (17.0%)
Information & referral	1,944 (21.4%)	1,272 (21.9%)	535 (15.2%)	340 (15.2%)	644 (22.9%)	395 (22.8%)
Total	9,094 (100.0%)	5,813 (100.0%)	3,528 (100.0%)	2,236 (100.0%)	2,815 (100.0%)	1,732 (100.0%)

EMPLOYMENT OUTCOMES AT CLOSURE

Table 9 presents the number of participants who were not employed at closure by gender and ethnicity. Of 15,437 White participants, 39.4 % (n = 3,582) of male and 46.3 % (n = 2,692) of female were reported to be unknown, while 57.5 % (n = 5,230) of male and 50.7 % (n = 2,948) of female were employed without supports in an integrated setting. In terms of African American participants, 53.5 % (n = 1,887) of male and 56.4 % (n = 1,260) of female were reported to be unknown. The percentage of African American and Hispanic participants employed without supports in an integrated setting was 42.8 % of African American male, 39.5 % of African American female, 56.6 % of Hispanic male, and 47.9 % of Hispanic female respectively.

Table 9

Employment Status at Closure

	White		African American		Hispanic	
	n (%)		n (%)		n (%)	
	Male	Female	Male	Female	Male	Female
Unknown	3,582	2,692	1,887	1,260	1,108	847
	(39.4%)	(46.3%)	(53.5%)	(56.4%)	(39.4%)	(48.9%)
Employment w/o supports in integrated setting	5,230	2,948	1,511	883	1,594	830
	(57.5%)	(50.7%)	(42.8%)	(39.5%)	(56.6%)	(47.9%)
Extended employment	1	2	0	0	0	0
	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
Self-employment	15	8	13	5	28	19
	(0.2%)	(0.1%)	(0.4%)	(0.2%)	(1.0%)	(1.1%)
Homemaker	2	19	1	3	2	6
	(0.0%)	(0.3%)	(0.0%)	(0.1%)	(0.1%)	(0.3%)
Unpaid family worker	7	7	1	1	0	1
	(0.0%)	(0.1%)	(0.0%)	(0.0%)	(0.0%)	(0.1%)
Employed with supports in integrated setting	257	137	115	84	83	29
	(2.8%)	(2.4%)	(3.3%)	(3.8%)	(2.9%)	(1.7%)
Total	9,094	5,813	3,528	2,236	2,815	1,732
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

LEVEL OF EDUCATION AT CLOSURE

Table 10 shows the level of education at closure by gender and ethnicity. 43.6 % (n = 3,963) of the White male and 40.9 % (n = 2,378) of White female participants had a high school degree or equivalent at closure, whereas 16.1 % (n = 1,467) of White males and 15.0 % (n = 873) had less than a high school education. And, 25.3 % (n = 2,302) of White male and 28.8 % (n = 1,674) of White female participants had an associate degree.

In terms of African American participants, 39.8 % (n = 1,404) of males and 37.8 % (n = 846) of females had a high school degree, while 23.4% (n = 827) of male and 21.9 % (n = 490) had less than a high school education.

The percentage of Hispanic males and females with a high school degree was 39.8 % and 41.2 % respectively. While 24.7 % (n = 695) of Hispanic males and 25.9% (n = 448) of Hispanic females had an associate degree, 15.8 % (n = 446) of Hispanic males and 14.8 % (n = 257) of Hispanic females had less than a high school education.

In terms of post-secondary education degree, White participants reported higher percentages in both male (3.3 %) and female (4.5 %) participants compared to African American males (1.2 %), African females (1.5 %), Hispanic males (1.2 %), and Hispanic females (1.7 %). .3% of males and 4.5 % of female participants.

Table 10
Level of Education at Closure

	White		African American		Hispanic	
	n (%)		n (%)		n (%)	
	Male	Female	Male	Female	Male	Female
Special education	1,064 (11.7%)	628 (10.8%)	887 (25.1%)	508 (22.7%)	520 (18.5%)	284 (16.4%)
Less than high school	1,467 (16.1%)	873 (15.0%)	827 (23.4%)	490 (21.9%)	446 (15.8%)	257 (14.8%)
High school graduate	3,963 (43.6%)	2,378 (40.9%)	1,404 (39.8%)	846 (37.8%)	1,121 (39.8%)	713 (41.2%)
Associate degree	2302 (25.3%)	1,674 (28.8%)	369 (10.5%)	358 (16.0%)	695 (24.7%)	448 (25.9%)
College or graduate degree	298 (3.3%)	260 (4.5%)	41 (1.2%)	34 (1.5%)	33 (1.2%)	30 (1.7%)
Total	9,094 (100.0%)	5,813 (100.0%)	3,528 (100.0%)	2,236 (100.0%)	2,815 (100.0%)	1,732 (100.0%)

REASONS FOR CLOSURE

In terms of reasons for closure, the most common reason for closure among White participants was achieving employment (60.6 % of male and 53.7 % of female) (See Table 11). A certain number of participants were closed because they were unable to locate or contact (16.3 % of male and 18.9 % of female), refused services (9.6 % of male and 12.1 % of female), and failed to cooperate (8.0 % of male and 8.6 % of female).

46.5 % (n = 1,641) of African American male and 43.6 % (n = 976) of African American female participants were closed due to achieved employment outcomes. The percentage of participants who could not be located or contacted were 23.1 % of African American males and 25.3 % of African American female participants.

Like other ethnic groups, the most common reason for closure among Hispanic participants was achieving employment (60.6 % of male and 51.1 % of female) followed by unable to locate or contact (15.7 % of male and 22.2 % of female), refused services (7.5 % of male and 8.7 % of female), and failed to cooperate (10.0 % of male and 10.8 % of female).

Table 11
Reasons for Closure

	White		African American		Hispanic	
		n (%)		n (%)		n (%)
	Male	Female	Male	Female	Male	Female
Achieved employment outcomes	5,511	3,119	1,641	976	1,707	885
	(60,6%)	(53.7%)	(46.5%)	(43.6%)	(60.6%)	(51.1%)
Unable to locate or contact	1,479	1,099	815	565	442	385
	(16.3%)	(18.9%)	(23.1%)	(25.3%)	(15.7%)	(22.2%)
Disability too significant to benefit VR	18 (0.2%)	15 (0.3%)	6 (0.2%)	6 (0.3%)	5 (0.2%)	0 (0.0%)
Refused services or further services	877 (9.6%)	702 (12.1%)	279 (7.9%)	218 (9.7%)	211 (7.5%)	150(8.7%)
Death	18 (0.2%)	4 (0.1%)	6 (0.2%)	2 (0.1%)	8 (0.3%)	4 (0.2%)
Individual in institution	24 (0.3%)	2 (0.0%)	28 (0.8%)	2 (0.1%)	5 (0.2%)	0 (0.0%)
Transferred to another agency	17 (0.2%)	13 (0.2%)	14 (0.4%)	4 (0.2%)	7 (0.2%)	5 (0.3%)
Failure to cooperate	726	498	527	322	282	187
	(8.0%)	(8.6%)	(14.9%)	(14.4%)	(10.0%)	(10.8%)
Transportation not feasible or available	10 (0.1%)	11 (0.2%)	4 (0.1%)	5 (0.2%)	2 (0.1%)	5 (0.3%)
Extended services not available	1 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.1%)	0 (0.0%)
All other reasons	413(4.5%)	349 (6.0%)	208 (5.9%)	136 (6.1%)	144 (5.1%)	111(6.4%)
Total	9,094	5,813	3,528	2,236	2,815	1,732
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

Research Question One

PREDICTORS OF EMPLOYMENT OUTCOMES AT CLOSURE FOR TRANSITION-AGED YOUTH WITH LEARNING DISABILITIES

Which demographic variables and VR program services predict employment outcomes at closure for transition-aged youth with learning disabilities? To answer this research question, this study conducted logistic regression to investigate how demographic and VR service variables predicted employment outcomes at closure (employment or unemployed) of transition-aged youth with learning disabilities who aged 15 – 18 years at application in the fiscal year of 2012.

Variables are defined as follows. Successful employment as an outcome variable was defined as being employed in a competitive, integrated setting for at least 90 days (RSA, 2008). Predictor variables included demographic and VR service variables. The four demographic variables included gender, race, level of education at application, and primary source of support at application.

Six VR service variables, including VR counseling and guidance, college training, occupational training, job search assistance, job placement, and job readiness training were entered for logistic regression analysis. There are some reasons why several VR service variables such as assessment and on-the-job-training were excluded for logistic regression analysis. For example, assessment was not designed to assist consumers to achieve employment outcomes. Therefore, this study did not include assessment as a predictor of employment outcomes. The on-the-job-training variable was not applicable for logistic regression analysis due to its distributions. Cohen et al. (2003) has suggested that dichotomous variables with distributions greater than 80% to 20% are not

appropriate for logistic regression. However, the on-the-job-training variable showed over the 95%-5% distribution.

In addition, Pearson and Kendall's *tau-b* correlations among predictor variables ranged from .27 to .35. It meant that correlation values were low enough to deal with issues of multi-collinearity. Therefore, a total of ten demographic and VR service variables were entered for logistic regression analysis.

For research question one, participants were randomly split into sample 1 and sample 2 for cross validation. Each sample consisted of half the transition-aged White, African American, and Hispanic youth with learning disabilities. Cross validation is recommended to prevent from reporting and interpreting statistically significant variable for both samples (Cohen et al., 2003). Cross validation proved no statistically significant differences on demographic variables between sample 1 and sample 2.

For sample 1, ten demographic and VR service variables were entered for logistic regression. And, sample 1 found the status of African American negatively predicted successful employment (β = - .570, *SE* = .034, Wald = 273.45, *p* = .000, Exp(β) = .566). Job placement (β = 1.058, *SE* = .033, Wald = 311.41, *p* = .000, Exp(β) = 2.88), college training (β = .577, *SE* = .035, Wald = 277.77, *p* = .000, Exp(β) = 1.78), and occupational training (β = .828, *SE* = .042, Wald = 383.49, *p* = .000, Exp(β) = 2.28) were proven to predict successful employment positively. Correct classification was 67.1%. The Cox and Snell R^2 was .143 and the Negelkerke R^2 was .191 (See Table 12).

The findings from Sample 2 were the same as sample 1 (See Table 13). The status of African American negatively predicted successful employment (β = - .510, *SE* = .037, Wald = 223.40, *p* = .000, Exp(β) = .585). And, job placement (β = 1.09, *SE* = .037, Wald = 301.41, *p* = .000, Exp(β) = 2.23); college training was positively (β = .503, *SE* = .040,

Wald = 299.03, p = .000, Exp(β) = 1.88), and occupational training (β = .806, *SE* = .045, Wald = 390.04, p = .000, Exp(β) = 2.19) were proven to predict successful employment positively. Correct classification was 66%. The Cox and Snell R^2 was .124 and the Negelkerke R^2 was .178.

Table 12
Predictors of employment outcomes in Sample 1

	β	*SE*	Wald	*p*	Exp(β)
African American	- .570	.034	273.45	.000	.566
Job placement	1.058	.033	311.41	.000	2.88
College training	.577	.035	277.77	.000	1.78
Occupational training	.828	.042	383.49	.000	2.28

Note. Job placement means a referral to a specific job resulting in an interview, college training means academic trainings leading to an academic degree above the high school level, and occupational training means occupational training provided not leading to an acdemic degree or certification (RSA, 2008).

Table 13
Predictors of employment outcomes in Sample 2

	β	*SE*	Wald	*p*	Exp(β)
African American	- .510	.037	223.40	.000	.585
Job placement	1.09	.037	301.41	.000	2.23
College training	.503	.040	299.03	.000	1.88
Occupational training	.806	.045	390.04	.000	2.19

Research Question Two

STATISTICAL DIFFERENCE ON WEEKLY EARNINGS AT CLOSURE FOR TRANSITION-AGED YOUTH WITH LEARNING DISABILITIES

In terms of research question two – *Are White, African American, and Hispanic males and female transition-aged youth with learning disabilities statistically different on weekly earnings?*, descriptive statistics showed that average weekly earnings at closure was $310.03 (SD = $170.10).

Table 14 presents weekly earnings at closure by gender and ethnicity. White male ($353.57) and female ($288.67) participants were more likely to receive higher weekly earnings than other ethnic groups (African American male/female at $276.20/$260.07, Hispanic male/female at $296.58/$259.55)

Table 14
Weekly earnings at closure

	White (n = 8,630)		African American (n = 2,617)		Hispanic (n= 2,592)		Total (n = 13,839)	
	Male	Female	Male	Female	Male	Female	Male	Female
Mean	353.57	288.67	276.20	260.07	296.58	259.55	328.26	277.89
	321.1		268.1		295.9		310.03	
Standard Deviation	199.37	151.94	128.14	125.86	143.17	122.70	181.13	142.92
							170.10	

The analysis of variance (ANOVA) was conducted to test for the within-subjects effects. Table 15 presents sources of variation for weekly earnings from the univariate analysis of variance, including sum of squares, degree of freedom, mean square, *F* ratios, and *p* values. The ANOVA results for weekly earnings identified a significant difference across racial groups ($F(1, 13833) = 127.60$) and across gender groups ($F(1, 13834) = 131.17$). Mean weekly earnings for White males and females combined ($321.1) were statistically higher than African American males and females combined ($268.1) (mean difference = 59.93, $p = .000$), but not statistically higher than Hispanic males and females combined $295.9).

Table 15
Source Table for the weekly earnings – Univariate ANOVA's

Source of Variation	*SS*	*df*	*MS*	*F*	*p*
Race	7040832.415	2	3520416.207	127.599	.000*
Gender	3618874.479	1	3618874.479	131.168	.000*
Race * Gender	1242947.230	2	621023.615	22.509	.000*
Error	381648493.7	13833	27589.713		.000*

*$p<.05$

Post-Hoc comparisons using Scheffe method proved that the significant differences existed across every ethnic group (See Table 16). White males and females received higher mean weekly earnings than African American males and females, and Hispanic males and females.

Table 16
Scheffe's Post-hoc comparisons

(I) Race /Ethnicity	(J) Race /Ethnicity	Mean Difference (I – J)	Standard Error	Sig.
White	African American	59.93*	3.707	.000
	Hispanic	46.18*	3.720	.000
African American	White	-59.93*	3.707	.000
	Hispanic	-13.75*	4.603	.012
Hispanic	White	-46.18*	3.720	.000
	African American	13.75*	4.603	.012

*$p<.05$

Research Question Three

PREDICTORS OF THE LEVEL OF EDUCATION AT CLOSURE FOR TRANSITION-AGED YOUTH WITH LEARNING DISABILITIES

Research question three is *which demographic variables and VR program services predict the level of education at closure for transition-aged youth 15 - 18 years with learning disabilities?* This study conducted logistic regression to investigate how demographic and VR service variables predicted the level of education at closure of transition-aged youth with learning disabilities who aged 15 – 18 years at application in the fiscal year of 2012. As seen in research question one, sample 1 and sample 2 were examined for logistic regression. Each sample consisted of half the transition-aged White, African American, and Hispanic youth with learning disabilities.

For sample 1, four demographic and six VR service variables were entered for logistic regression for predictors of level of education at closure (defined as participation in college or graduate degree or associate degree). And, as found in research question one, sample 1 found the status of African American negatively predicted successful employment (β = - .470, *SE* = .029, Wald = 252.22, *p* = .000, Exp(β) = .423). College training (β = .503, *SE* = .031, Wald = 287.44, *p* = .000, Exp(β) = 1.22), and occupational training (β = .801, *SE* = .046, Wald = 327.02, *p* = .000, Exp(β) = 2.02) were proven to predict successful employment positively. Correct classification was 68.4%. The Cox and Snell R^2 was .139 and the Negelkerke R^2 was .178 (See Table 17).

Table 17
Predictors of the level of education at closure in Sample 1

	β	*SE*	Wald	*p*	Exp(β)
African American	- .470	.029	252.22	.000	.423
College training	.503	.031	287.44	.000	1.22
Occupational training	.801	.046	327.02	.000	2.02

The findings from Sample 2 were the same as sample 1 (See Table 18). The status of African American negatively predicted successful employment (β = - .499, *SE* = .038, Wald = 267.88, *p* = .000, Exp(β) = .467). And, college training was positively (β = .488, *SE* = .038, Wald = 293.07, *p* = .000, Exp(β) = 1.41), and occupational training (β = .808, *SE* = .048, Wald = 331.07, *p* = .000, Exp(β) = 2.18) were proven to predict successful employment positively. Correct classification was 69.1%. The Cox and Snell R^2 was .133 and the Negelkerke R^2 was .171.

Table 18
Predictors of the level of education at closure in Sample 2

	β	*SE*	Wald	*p*	Exp(β)
African American	- .499	.038	267.88	.000	.467
College training	.488	.038	293.07	.000	1.41
Occupational training	.808	.048	331.07	.000	2.18

CHAPTER 5

DISCUSSION

The primary goal of this study was to examine predictors of employment outcome, weekly earnings, and post-secondary outcomes of transition-aged youth with learning disabilities, by the use of the RSA 911 national data in the fiscal year of 2012. This chapter addresses four sections: (a) research findings and integration with previous literature (b) limitations, (c) implications for practice, and (d) implications for future research.

RESEARCH FINDINGS AND INTEGRATION WITH PREVIOUS LITERATURE

Research Question One

Which demographic variables and VR program services predict employment outcomes at closure for transition-aged youth 15 – 18 years with learning disabilities (LD)?

African American status

Findings in this study identified that African American males and females with learning disabilities (LD) had statistically significantly lower successful employment rates than White males, White females, Hispanic males, and Hispanic females with LD. This finding was aligned with those in previous studies in the VR literature, which have reported lower employment rates for African American males and females with disabilities in comparison to White and Hispanic males and females with disabilities (Blackorby & Wagner, 1996; Newman et al., 2009). Unfortunately, the difference by race

in employment outcomes is also reflected in the general population as White individuals tend to earn more than African Americans (Hegewisch et al., 2012).

Research on transition outcomes in the special education literature has reported low employment rates for African American youth with disabilities as well. The National Longitudinal Transition Study addressed employment rates for African American youth with disabilities which was 47.3% in 1990 compared to White youth with disabilities at 60.8% and Hispanic youth with disabilities at 50.5% (Blackorby & Wagner, 1996). In the National Longitudinal Transition Study – 2 (NLTS-2), employment rates for African American youth with disabilities were statistically significant lower than White youth with disabilities (Newman et al., 2009).

When it comes to racial disparity issues on transition outcomes for youth with learning disabilities (LD), research specific to culturally ethnically diverse youth with LD in the VR literature was not identified at this time. Instead, a number of topics in transition practices for ethnically diverse youth with disabilities have been addressed including engagement of ethnically diverse individuals in VR service delivery (Anderson & Smart, 2010; Rosenthal & Bervin, 1999; Taylor-Ritzler, 2010), transition planning with ethnically diverse families (Alston, Gayles, Rucker, & Hobson, 2007; Feist-Price & Harris, 1994; Irving & Hudley, 2005; Kim & Morningstar, 2005; Landmark, Zhang, & Montoya, 2007), examining test scores and interpreting scores for ethnically diverse youth with disabilities (Clark, 2008), ethnic diversity combined with household income (Cameto et al., 2004), and guidelines for collaboration between family and professionals (Blue-Banning, Summers, Frankland, Nelson, & Beegle, 2004; Kalyanpur & Harry, 1997).

In terms of factors of racial disparities in successful employment rates for youth with disabilities, several hypotheses in VR literature are present. First, higher participation rates in associate degree and college/graduate degree program for White and Hispanic youth, and the employment placement resources from post-educational institutions may assist with their employment finding (Alston et al., 2007; Taylor-Ritzler, 2010). Second, African American youth and/or their family may not agree with the types of employment suggested by VR counselors. Alston et al. (2007) noted that African American consumers were not satisfied with jobs because jobs did not fit their skill sets, VR counselors lacked awareness of racial issues, or race relations mattered in a particular employment situation. Third, White VR counselor's perspectives may matter. Rosenthal and Bervin (1999) noted that White preservice counselors viewed providing additional education services and employment for African American consumers less favorably than those for White consumers. Also, Feist-Price and Harris (1994) reported that African American individuals may feel it difficult to identify their transition goals if a VR counselor reminds them of negative past experiences related to racism. It suggests that cultural mistrust between African American consumers and VR counselors can be related to perspectives about outcome expectations and values (Irving & Hudley, 2005). In summary, limited participation in post-secondary education, disagreement with the suggested types of employment, and lack of satisfaction with VR service and counselors could have impeded VR service delivery, and have made it difficult for African American youth with disabilities.

Job placement, college training, and occupational training

In terms of VR service variables, three VR service variables, including job placement, college training, and occupational training, were related to higher probability of successful employment outcomes for transition-aged youth with LD. This finding is aligned with findings from the study by Bolton et al. (2000). Bolton and his colleagues (2000) have also demonstrated that job placement, job search, and college training were more likely to promote employment outcomes for youth with LD. Other studies on consumers with LD in the VR literature have listed similar findings. Dunham and his colleagues (1998) noted that 19% of youth with LD participated in college training. Also, Hayward and Schmidt-Davis (2003) reported that 16.3% of youth with LD received vocational training, 14.9% participated in community college training, 12.7% received job placement, and 10.7% got engaged job development services to promote employment outcomes.

In special education literature, VR service variables such as job placement, college training, and occupational training have been discussed under the category of student development (Kohler and Field, 2003; Test et al., 2009). Previous trials of developing employment-related skills under student development focused on teaching job related behaviors, whose targets generally seemed to be individuals with intellectual disabilities. There has been criticism about analyzing the jobs and the multiple/complex sequences needed for the assigned tasks (Kohler, 1994; Mechling & Ortega-Hurndon, 2007), which is important for individuals with learning disabilities in the workforce. By supporting this notion, Evers (2008) pointed out that special educators should not assume that students with learning disabilities already have occupational skills in other situations. And, several transition models, which have been implemented across public educational

settings, were based upon advanced occupational needs for students with learning disabilities (Evers, 2008). Based on this perspective, this study's finding that VR service variables including job placement, college training, and occupational training were effective in leading to successful employment outcomes for transition-aged youth with LD should be emphasized and implemented in education and VR counseling fields.

Research Question Two

Are White, African American, and Hispanic males and female transition-aged youth with learning disabilities statistically different on weekly earnings?

Gender differences on weekly earnings

The gender wage gap is important as many women are responsible for family incomes and the possible gender pay gap may negatively affect independence of women and their families (Hegewisch et al., 2012). In regard to weekly earnings, this study found gender differences within the group of White and Hispanic youth with LD, respectively. In the case of African American youth with LD, there was no statistically significant gender difference on weekly earnings. This finding was also shown in other studies demonstrating their gender pay gap is typically smallest between African American male and female workers (Sum & Khatiwada, 2011). Even though previous similar studies have reported no statistical differences by gender in mean wages (Newman et al., 2009; Newman et al., 2010), the finding in this study is similar to gender differences on wages in the general population (Hegewisch et al., 2012), gender differences on the mean average hourly wage (Madaus, Gerber, & Price, 2008; Wagner, Newman, Gameto, Garza, & Levine, 2005). Again, males are more likely to earn higher wages than females, aside from the existence of disability.

Level of education on weekly earnings

In this study, the ANOVA results for weekly earnings identified a significant difference across racial groups. To account for some of the differences in weekly earnings, level of education as well as ethnicity or gender may be considered because the level of education is likely to be related to successful employment outcomes and higher weekly earnings (Migliore et al., 2012).

Participants in this study were from 15 through 18 years old at application, and there were high levels of having less than a high school diploma across the participants, which was higher than reported previously (Gonzalez et al., 2011; Thurlow, 2012). The level of education at closure in this study increased for all youth with LD but with variations. The largest variation was found with youth with an associate degree or higher. And, White males and females and Hispanic males and females had higher rates of an associate degree or higher than African American males and females. In regard to a college/graduate degree, White males and females were more likely to receive a college/graduate degree than African American or Hispanic males and females. In summary, the level of education combined with ethnic and gender differences may account for weekly earnings among transition-aged youth with LD.

Research Question Three

Which demographic variables and VR program services predict the level of education at closure for transition-aged youth 15 - 18 years with learning disabilities?

Racial differences on level of education

Findings in this study identified that African American males and females with learning disabilities (LD) had statistically significant lower level of education than White males, White females, Hispanic males, and Hispanic females with LD. Compared to White and Hisanic participants, a higher percentage of African American participants reported "less than high school" as the level of education at closure and a small number of African American participants pursued toward associate degree or college degree. This finding was aligned with those in previous studies, which have shown lower level of education for African American males and females with disabilities in comparison to White and Hispanic males and females with disabilities. For example, the Alliance for Excellent Education (2012) reported a high school graduation rate for students with learning disabilities (LD) of 68% in 2011, in comparison to 72% for students in the general population. When it comes to racial differences on high school graduation rates in the general population, 78% of White students graduated from high school. However, high school graduate rates for African American was 57% (Alliance for Excellent Education, 2012). This data reconfirms that African American students in the general population reported lower high school graduation rates than students with LD.

In regards to racial disparity, another speculative hypothesis can be suggested. Rehabilitation counselors may have been following culturally diverse youth's expressed preferences in VR counseling practices. Based on rates of provision of vocational rehabilitation counseling in Table 8, VR counselors appeared to engage with African

American males and females and Hispanic males and females in in-depth counseling and guidance. What is not known is if African American males and females were telling counselors they didn't want post secondary education services, and Hispanic males and females were telling counselors that they did not want college services, especially if it meant years of school, and instead wanted to obtain employment quickly. However, Landmark et al. (2007) noted that African American and Hispanic parents may prioritize employment over post-secondary education for their children as a means of contributing financially to the family.

Dropout rates

Dropout rates from high school have been regarded as one of the most important issues for students with learning disabilities (LD). Kaufman and his colleagues (2004) addressed the value of a high school diploma as "a minimum requirement for entry into the labor market" (pp.1). And, strengthened high school graduation requirements affect graduation of youth with learning disabilities. Even though some participants in this study may still be attending high school at closure due to their age, a certain percentage of participants not having high school graduate diplomas should be noted.

Previous studies reported various ranges of dropout rates from high school among youth with LD, and have indicated gradual improvements. According to the report issued by the National Center for Learning Disabilities (Cortiella, 2011), 22% of students with learning disabilities dropped out from high school in 2009, which was lower than the 40% in 2000. Also, dropout rates for students with LD for 2010 to 2011 were reported to be at 19%, with graduation rates with a regular diploma at 68% (www.decodingdyslexiaor.org/wp-content/uploads/2013/05/DiplomasatRisk.pdf).

Recently, Thurlow (2012) reported a dropout rate of 14.7% for youth with LD, while

Gonzalez and his colleagues (2011) reported graduation rates with a regular diplomat at 58.5% for youth with LD who received vocational rehabilitation (VR) services.

LIMITATIONS

The findings of this study have limitations. First, this study implemented a correlational research design (Shadish, Cook, & Campbell, 2002). The findings do not imply cause and effect relationships among the variables. Findings from regression methods must be carefully interpreted due to its statistical limitations. Regression methods may determine relationships among variables, but cannot guarantee the casual mechanism of relationships among variables (Shadish, Cook, & Campbell, 2002).

Second, limitations regarding generalizability exist due to selection of participants. This study used the data gathered across federal and state VR agencies, and extracted participants fit for research questions and selection criteria. Therefore, participants of this study were not randomly assigned and may not be assumed to represent each gender and ethnic group of transition-aged populations with learning disabilities. In addition, this study did not include several ethnic groups (e.g. American Indians or Alaskan Natives, and Asians) due to the smaller number of individuals than White, African American, and Hispanic individuals. Therefore, the findings of this study need to be carefully generalized to these excluded ethnic groups.

Third, construct validity may be a limitation due to the definition of disability in the RSA-911 data. The RSA-911 Case Service Reporting Manual does not include variables which are regarded as indicators of successful outcomes among people with disabilities, such as intelligence scores, level of language acquisition, level of functionality (Greene, 2006), and family socio-economic status. Also, The RSA-911 Case Service Reporting Manual (2008) defines learning disabilities into a single category.

Finally, extraneous variables may affect external validity of this study. Vocational Rehabilitation (VR) services are provided by a group of professionals influenced by institutional environments. Service provision and outcomes can be primarily affected by the quality and expertise of professionals, such as VR counselors. And, transition outcome practices can be influenced by special education policy and employment trends toward populations with learning disabilities. However the RSA-911 data file cannot include extraneous qualitative aspects of VR service practices. Therefore, consideration of extraneous variables must be given to interpret findings.

IMPLICATIONS FOR PRACTICE

Given the findings from this study, there are several implications for practice. First, to improve service provision with African American consumers with LD, an empowerment approach in practice is important. Taylor-Ritzler et al. (2010) noted that the most significant contributor to successful engagement for ethnically diverse consumers in the VR program was an empowerment approach. Also, Feist-Price and Harris (1994) emphasized the importance of VR counselors' expectations about consumers' outcomes, which is a key in the empowerment approach. The empowerment approach includes the belief that all individuals are entitled to become the best they can be. Also, consumers from ethnically diverse backgrounds must keep motivated to address challenges that may impede employment in the workplace and need to feel comfortable discussing their goals and identifying appropriate VR services and programs.

A second implication is collaboration with ethnically diverse youth and families (Kim & Morningstar, 2005; Landmark et al., 2007). Aspects of interactions between youth, families, and professionals can be determined by characteristics of professionals such as VR counselors. Professionals who were considered to be clear, honest, and

knowledgeable were welcomed by ethnically diverse youth and family. Parents viewed favorably professionals who clearly addressed strengths of their children, readily shared information about the transition-related services and processes, and valued family involvement in the decision making process (Kim & Morningstar, 2005). Lack of cooperation and involvement should not be interpreted as uncaring or reflecting "informed choice", because families may have a fear of losing financial benefits or worries of uncertainty. If a family of youth shows minimal participation, professionals should question whether the choice is a free and informed choice or not (Landmark et al., 2007).

A third implication includes guidelines for collaboration suggested by ethnically diverse youth, families, and professionals (Blue-Banning et al., 2004). The quality of communication comes first in the guidelines. Professionals need to be open and honest with provision of information that is free of jargon. Also, professionals have to check tactfully to ensure youth' and parents' understanding of information and demonstrate a willingness to meet and cooperate with family members in transition practices (Blue-Banning et al., 2004). The relationships between youth, family, and professionals have to be developed with respect and trust across all individuals in the process.

A fourth implication is that providing job placement, college training, and occupational training is recommended for successful employment outcomes and improving level of education among youth with LD. In terms of job placement, 35.0% of White males, 31.0% of White females, 45.3% of African American males, 41.0% of African American females, 35.0% of Hispanic males, and 33.8% of Hispanic females received job placement assistance, which was reported as the most prevalent VR service and the statistically significant predictor of successful employment outcomes. Job

placement was also reported as a powerful predictor of successful employment for youth with Autism (Migliore et al., 2012).

A fifth implication is gender disparity issues in wages. Closing the wage gap on gender is important due to the importance of women's role in family economy and of independence for women (Hartmann et al., 2012). Therefore, VR counselors need to assist transition-aged female youth with LD to consider educational and occupational choices based on understanding their own personal strengths and interests, which may ultimately lead to higher wages (Kashiwabara et al., 2012). Previous literature suggested that structured opportunities such as job shadowing or site visits could help female youth with disabilities to consider more options with greater flexibility in employment with higher earnings (Linstrom et al., 2004).

A sixth implication is post-secondary education opportunities for youth with LD. In the 2000's, postsecondary education became important in transition planning for transition-aged students with learning disabilities. More than eighty percent of high school students with disabilities showed their interest in putting postsecondary education in their transition goals (Cameto, Levine, & Wagner, 2004), because postsecondary education was considered to be influential in increasing earnings (Marcotte el al., 2005). Accordingly, the number of students with learning disabilities entering college has increased (Cummings, Maddux, & Casey, 2000; Kavale & Forness, 1996; Levinson & Ohler, 1998; McGuire, 1997). Likewise, postsecondary education becomes an important transition preparation path as well as a vocational rehabilitation service for transition-aged students with disabilities.

Even though racial disparity exists, many transition age youth with LD tend to pursue post-secondary education opportunities. Previous research already noted that

students with disabilities and families showed interests in post-secondary education and its linkage to better employment opportunities (Migliore et al., 2012; Newman et al., 2009). And, more college-based programs have been operated across the country (Grigal & Hart, 2010; Migliore et al., 2012), and this study also proved college training was effective in predicting successful employment outcomes for youth with LD. Like what was shown in the National Council on Disability's report (2008), youth with mild disabilities (e.g. learning disabilities, Asperger's Syndrome, ADHD) may be isolated in receiving appropriate transition services due to financial limitations. For example, specialized services for youth with LD or ADHD including college preparation programs and collaboration projects in some states (e.g. Alabama) (National Council on Disability, 2008) may be good examples to overcome current challenges.

A final implication is the need for collaboration between public special education services and VR services. The transition process for youth with LD is a collaborative work between special education and vocational rehabilitation services. In terms of coordination of transition services, the Government Accountability Office (GAO) (2012) already noted problems about current transition practices for youth with disabilities such as federal agencies on special transition activities and their complexity, lack of government-wide strategy or framework for coordinating transition services, and absence of assessing the effectiveness of coordination efforts. To implement this study's findings and improve transition practices for youth with LD, the active and effective collaboration between public special education and VR services is important.

IMPLICATIONS FOR FUTURE RESEARCH

Transitioning from high school to adulthood is important for youth with LD. And, desirable transition outcomes have been acknowledged by the level of participation in employment and post-secondary education (Anderson & Smart, 2010; Gerber & Brown, 1997; Kochbar-Bryant, Bassett, Webb, 2009). Based on this perspective, this study examined which demographic and VR service variables positively affect successful employment and post-secondary education outcomes.

To improve transition practices for youth with LD, there are some suggestions for future research. First, there is a need for additional research on VR outcomes for ethnically diverse youth with LD. It would be of interest to demonstrate if findings in this study are specific to the population of this study or would represent transition outcomes of youth with LD in general. It would also be helpful to conduct research on decision making and transition practices for youths and families.

A second implication for future research is a need for research on transition practices for older transition-aged youth with LD. The transition-aged youth with LD can be divided into 15-18 years and 19-24 years. Most youth with LD aged 15-18 years tend to attend secondary educational institutions at the time of application, but youth with 19-24 years old vary in educational status (e.g. high school drop-out, high school diploma, associate degree, and attending college). It may be argued that predictors related to successful transition outcomes and their effectiveness may be different due to differentiated educational environments and related VR services in younger or older transition-aged youth groups.

Finally, there is a need for research with various methodologies. First, analyzing the RSA-911 data from multiple years may allow for changes, trends, and the consistency

of populations. For instance, changes in employment outcome rates for youth with LD would provide useful information in understanding detailed needs for youth with LD in transition practices. Second, conducting qualitative studies based on in-depth interviews and observations may allow understanding of consumers' needs in VR and special education transition practices. Previous qualitative studies have dealt with predictors of success during adulthood (Field, Sarver, & Shaw, 2003; Gerber, Ginsberg, & Reiff, 1992; Goldberg et al., 2003; Raskind et al., 1999), transition planning assessment (Clark, 1996; Sitlington, 1996), and experiences in the workplace and post-secondary educational institutions (Gerber, Reiff, & Ginsberg, 1996; Hadley, 2007; Hicks-Coolick, & Kurtz, 1997; Lindstrom & Benz, 2002; Madaus, Gerber, & Price, 2008). In future qualitative research on transition practices, identified predictors of employment and post-secondary education outcomes could be reviewed by implementing qualitative approaches with real cases based on voices of youth with LD and VR counselors.

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