

ABSTRACT

Title of Document: Predictors of Supported Employment for Transitioning Youth with Developmental Disabilities

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The Individuals with Disabilities Education Act of 2004 requires school systems to plan systematically for the transition from school to post-secondary education and/or employment and include measurable post-school goals in students' IEPs. Schools are required to coordinate activities, such as work experiences, to assist students in meeting their post-school goals. In addition, IDEA 2004 outlines a requirement for states to evaluate their performance on priority indicators including the percent of youth who had IEPs who are working in the community within the first year after exiting school (Indicator 14, IDEA 2004). Although youth with developmental disabilities (DD) typically stay in school longer than their peers and often receive costly long-term funded

supports as adults, these students continue to transition to sheltered post-school employment rather than supported employment (paid work in the community). Studies examining the employment outcomes for youth with disabilities and predictors for favorable post-school outcomes proliferate in the field yet little is known about the types of employment outcomes for transitioning youth with developmental disabilities who receive long-term funded supports from community rehabilitation provider agencies (CRPs) or the variables that best predict supported employment outcomes.

In this study, CRP staff members were asked to complete a survey on 560 individuals who received state DD funded supports from one of 81 CRPs across one Mid-Atlantic state. The final sample included 338 subjects (60.4% response rate) from 57 CRPs. Only 14.2% of the transitioning youth with DD were in individual supported employment positions in the community. Over one-third of the sample (36.9%) was in other supported work (e.g. enclaves, mobile crews) through a CRP and 57.1% were engaged in unpaid/sheltered or non-work activities at the CRP. Using multinomial logistic regression, five variables were identified as salient predictors of supported employment: Family expressed preference for supported employment, paid work experience during secondary school years, self-management skills, community mobility skills, and race/ethnicity. The findings are particularly meaningful because this is the first study to examine predictor variables that are relevant for transitioning youth with DD, such as typical secondary school experiences (e.g. post-secondary program participation, unpaid work experience) and the outcome variable reflects the spectrum of employment outcomes for individuals receiving funded supports from CRPs.

PREDICTORS OF SUPPORTED EMPLOYMENT FOR TRANSITIONING YOUTH
WITH DEVELOPMENTAL DISABILITIES

By

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“... the preparation of [individuals with intellectual disabilities] for a useful role in society and industry must receive more attention... The problem is complex. Neither special education nor special rehabilitation procedures furnish the complete answer to employment of [these individuals]; new knowledge and new techniques are needed...

(President Kennedy, 1961, p. 1).

Dedication

For my late grandmother, Melvene Francis, who showed me the importance of, and challenges to, living a meaningful and productive life as an individual with a disability. She once told me that with the love and support of my family, I could achieve anything I set my mind to.

For Mom, Dad, and Alyssa who have proved Grandma right by supporting me every step of the way. Thank you for instilling in me a sense of principled optimism that has shaped the kind of professional I aspire to be.

For my husband Michael who understood how important this journey was to me and made so many sacrifices so I could fulfill this dream.

And, lastly, to my children, Dane and Stanley, who are really the answer to a much more important dream. You have helped me to keep this all in perspective by filling my life with laughter and love that I didn't know I was missing.

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Now that I understand how critical family support is for transitioning youth, I can see how lucky I have been to have the support of my family through the years.

These past four years have been pretty unbelievable. I'll never be able to thank you enough for helping me to "put one foot in front of the other..." Michael:

Thank you for proofreading, brainstorming, editing, and encouraging me through every paper, class, project, and real life hurdle. I am so proud of us.

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Chapter 1: Introduction

In recent years, there has been a significant shift towards accountability for the outcomes of all students in public education. The No Child Left Behind Act (NCLB) of 2001 and Individuals with Disabilities Education Improvement Act of 2004 (IDEA) have placed increased demands of accountability on school systems for the outcomes of all students, including those with developmental disabilities (DD), by requiring the use of evidence-based practices. IDEA 2004 also specifically outlines a requirement for states to evaluate their performance on priority indicators. In addition to tracking academic achievement for students with disabilities, states have to report on the “percent of youth aged 16 and above with an IEP that includes coordinated, measurable, annual IEP goals, and transition services that will reasonably enable the student to meet post-secondary goals” (Indicator 13) and the “percent of youth who had IEPs, are no longer in secondary school and who have been competitively employed, enrolled in some type of postsecondary school, or both, within one year of leaving high school” (Indicator 14) (IDEA, 2004).

As educators seek to identify evidence-based practices that improve adult outcomes for individuals with disabilities and meet the requirements of Indicators 13 and 14, research indicating less than desirable post-school outcomes proliferate in the literature in special education (Blackorby & Wagner, 1996; Wagner, Newman, Cameto, Garza, & Levine, 2005; Wagner, Newman, Cameto, Levine & Garza, 2006; Heal & Rusch, 2005). Findings from studies that capture the post-school outcomes indicate that transitioning youth with DD (including intellectual

disabilities, multiple disabilities, and autism) continue to have higher rates of unemployment, work fewer hours, and earn less pay than their peers (Harris, 2004; Blackorby & Wagner, 1996). This is in spite of the fact that students with DD typically stay in school longer than their peers and are often eligible for costly long-term state and federal funded supports. The reliance on public assistance benefits, such as Supplemental Security Income (SSI) and the loss of productivity by unemployed individuals with disabilities burdens an already strained American economy (Conley & Noble, 1990).

Long-term Supports and Services for Individuals with DD

Each state has a publicly funded DD agency that provides funds for ongoing services through various categories (respite, day habilitation, etc) for individuals with DD and their families. Although services vary from state to state, state DD agencies typically provide funds for vocational and day services to agencies known as community rehabilitation providers (CRPs) to eligible individuals with DD. While some individuals participate in sheltered non-work activities, sheltered work-related activities, or unpaid work, others participate in integrated paid work in the community.

The notion of integrated paid work as an outcome for individuals with DD has evolved over the past 50 years. In response to the widespread institutionalization and segregation of individuals with DD, a Swedish researcher introduced the concept of normalization (Nirje, 1969). Nirje believed that individuals with mental retardation should experience normal life cycles, rhythms, and routines including education, work, and leisure-time activities to the

maximum extent possible. He also emphasized the concept of integration with people without disabilities. Coinciding with Nirje's work, the U.S. Civil Rights movement helped to focus attention of the rights of individuals with disabilities. Then-President John F. Kennedy articulated the need for "new methods" for the rehabilitation of individuals with mental retardation in 1969 (Kennedy, 1969, p. 1). In addition, researchers and practitioners began documenting individuals with mental retardation or DD could participate in work experiences with the appropriate training for the job and support from workers in adult agencies (e.g., Wehman & Moon, 1998).

In 1984 when, then-Assistant Secretary for the Office of Special Education and Rehabilitative Services (OSERS), Madeline Will, highlighted the need for integrated work and support services in a paper on supported employment. Will defined supported employment as paid work in the community with the need for ongoing support services (Will, 1984a). Since then, researchers and policy makers have developed various definitions and models for supported employment. Factors that differentiate the definitions include whether or not there is a minimum number of hours or minimum wage; whether or not the wage must be paid by the community business rather than the CRP; whether the proportion of total workers with disabilities or total supported employees cannot exceed a certain level and, if so, how many individuals can be employed at the same business or within the same department of the business during the same time (Mills, 2006). Some definitions allow for group models of supported employment, including enclaves and mobile crews. Enclaves consist of several

individuals working in a group under supervision of a CRP staff member at a place of business (e.g., restaurant, hospital). Mobile crews consist of groups of individuals who travel together to work at various sites in the community under the supervision of a CRP staff member (Lutfiyya et al., 1988). Examples include janitorial and landscaping crews who travel together to provide services to an organization, agency, or individual. For a summary of the definitions of supported employment found in legislation, see Appendix A1.

Increasing Rates of Supported Employment

CRPs or non-profit adult agencies generally provide services for supported employment to individuals with DD. These agencies have generally provided a range of vocational services to individuals with disabilities including integrated and supported employment, sheltered work activities and day habilitation activities (Wehman & Moon, 1988). The process of moving from sheltered to integrated employment has varied from state to state in terms of serving more individuals with disabilities in the community to work and live with appropriate supports. The recent formation of two coalitions dedicated to advancing supported employment outcomes for all individuals with DD illustrates a renewed focus on increasing the rates of supported employment.

The Supported Employment Leadership Network (SELN) is an interstate collaborative jointly sponsored by the National Association of State Directors of Developmental Disabilities Services (NASDDDS) and the Institute for Community Inclusion at the University of Massachusetts Boston (ICI). The 17 states in this collaborative worked together to promote integrated employment

outcomes (ICI, 2010). The Alliance for Full Participation (AFP) is a network of state teams comprised of individuals with DD, their families and professionals was dedicated to ensuring that individuals with DD have access to “real work for real pay” (AFP, 2010). AFP provides resources to state teams to assess their current employment practices and outcomes and to develop measurable goals and action plans for increasing the rate of individual supported employment.

Research Related to Supported Employment for Individuals with DD

A survey of state DD agencies showed that although the national rate of supported employment for adults with DD grew by 15% per year between 1988 and 2000, the rate of growth between 2000 and 2002 slowed to 3% per year (Rizzolo, Hemp, Braddock, & Pomeranz-Essley, 2004). It is important to note that these findings are based on states’ self-report data and many of the states reported the percentages of individuals who were receiving DD funding for supported employment rather than actual employment outcome. For example, an individual could have been receiving supported employment funding but actually be working in a sheltered workshop. Despite the recent policy emphasis on “real work for real pay,” it is surprising that neither Butterworth et al. (2008) nor Rizzolo et al. (2003) distinguished between the various models of supported employment (individual, enclave, or mobile crew). Thus, there is a lack of meaningful data about the supported employment outcomes that individuals with DD are engaged in.

Studies that explore predictor variables for employment outcomes for adults with DD typically examined individual, family, and community variables,

such as self-determination, income, and the community economy (Cunningham & Altman, 1993; Dixon & Reddacliff, 2001; Moore, Feist-Price, & Alston, 2002; Morgan et al, 2000; Olson, Cioffi, Yovanoff, & Mank, 2000). Studies on adults with DD generally do not account for secondary school experiences, such as work experiences and school settings that may be related to employment outcomes for TYDD.

Transitioning to Supported Employment

The paradigm shift towards integration for individuals with DD has also been evident in education. Legislation and policy initiatives in the 1970 to present, have guided special education services to include activities that move students with disabilities towards integrated outcomes in school, employment, and community settings. Despite this emphasis on integration, individuals with DD continue to have high rates of sheltered post-school outcomes. Recent studies indicate that transitioning youth with developmental disabilities (TYDD) and their families report supported employment as a desired postsecondary outcome (Migliore, Mank, Grossi & Rogan, 2007; Neubert & Redd, 2008; Redd, 2004). Preparing students with disabilities for integrated post-school outcomes has been a policy priority since the 1980's. Transition from school to employment became a federal priority in response to the poor adult outcomes for students in special education (Will, 1984b). In 1990, the IDEA) (PL 101-476) and mandated transition services for the first time. Transition Services were defined as:

A coordinated set of activities for a student, designed within an outcome-oriented process, which promotes movement from

school to post-school activities, including postsecondary education, vocational training, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation” (PL 101-476, 20 U.S.C., 1401 [a] [19]).

The definition of transition has evolved in IDEA legislation but continues to emphasize the need for better post-school outcomes for young adults with disabilities as they exit the public school systems. The assumption is that secondary school experiences can improve post-school outcomes. Thus, educational researchers have tried to identify secondary school experiences and other predictors of favorable employment outcomes (Baer et al., 2003; Benz, Lindstrom, Yovanoff, 2000; Benz, Yovanoff, & Doren, 1997; Blackorby & Wagner, 1996; Doren & Benz, 1998; Dunn & Shumaker, 1997; Grigal, Simonsen, & Vratarich, 2007; Hasazi, Johnson, Hasazi, Gordon, Hull, 2001; Heal & Rusch, 1995; Morgan, Ellerd, Jensen, & Taylor, 2000; Rabren, Dunn, Chambers, 2002; Wagner, 1991; Wagner, Newman, Cameto, Levine, & Garz, 2006; Wehmeyer & Palmer, 2003; White & Weiner, 1991). Predictors have included paid work experience, male gender, Caucasian race, income, SSI recipient status, paid work experience, vocational education, general education, and receipt of standard high school diploma.

Many of these predictors identified in the literature may not be relevant to TYDD. For example, TYDD often do not participate in regular education, vocational education (or career and technology education) programs or receive a

standard high school diploma. TYDD often participate in community-based and functional instruction during their final years in the school system which may include unpaid or stipend-paid work experience, a variable that is not measured in studies for the aggregate population. It is therefore questionable whether the findings from follow-up studies of an aggregate population of individuals with disabilities are relevant to TYDD.

Another problem lies in the definition of disability between the education and adult service system. In follow-up studies of transitioning youth, the term developmental disability is not used; rather they are identified by their special education category (e.g., mental retardation, autism, multiple disabilities). As students transition to adult services, eligibility for long-term funding is based on qualifying as an individual with a developmental disability. This typically includes individuals with intellectual disabilities (mental retardation), multiple disabilities, and autism. Prior to this study, there were no follow-up studies specifically of TYDD who were eligible for and received long term funded supports from a DD agency.

Although researchers from the fields of special education and adult service have both sought to describe the post-school outcomes for individuals with disabilities and the predictors of favorable outcomes, there are no correlational studies that focus on TYDD and identified relevant predictor variables for individual supported employment outcomes.

Purposes of the Study

The purposes of this study were to: (a) examine the levels of work activity, including supported employment, for TYDD who received funding from a state DD agency in one Mid-Atlantic state one year after exiting school; (b) identify the relationship of demographic (e.g., race), individual skill (e.g., self-determination), family (e.g., family involvement), school (e.g., school setting), and community (e.g., access to public transportation) variables to these outcomes; and (c) determine if individual skill, family, and secondary school experiences accounted for additional variance in supported employment outcomes after controlling for demographic and community variables.

Research Questions

1. What are the employment outcomes for TYDD who receive long-term supports from a CRP one year after exiting school?
2. How are demographic, individual skill, family, school, and community variables related to supported employment outcomes for TYDD?
3. Do individual skills, family, and secondary school experiences account for additional variance in supported employment outcomes after controlling for demographic and community variables?

Study

To address my research questions, I implemented multi-modal survey research, which is an appropriate way to measure a large number of variables across a large population (Nardi, 2003). I developed and administered a survey for CRP staff members (the respondents) who specifically worked with TYDD

(the subjects) one year after they exited the public school system in 2008. I developed two versions of the survey which allowed the CRP respondents to choose their preferred mode of response: (a) a computer-administered, self-interviewing (CASI) survey and (b) a paper version self-administered questionnaire (SAQ). The respondents described the level of work activity and provided information about a number of empirically derived predictor variables. For the purpose of this study, there were three outcome levels: Individual Supported Employment (ISE), Other Supported Work and Unpaid/sheltered/non-work (USNW).

The two types of supported employment outcomes included in this study are: Individual Supported Employment (ISE) and Other Supported Work (OSW). Individual placements that paid at least minimum wage paid by an employer are referred to as Individual Supported Employment (ISE) while enclaves and mobile crews are described as Other Supported Work (OSW). Work in the community that pays less than minimum wage is also included in the definition of OSW. Outcomes for subjects who were not engaged in a type of supported work were categorized as Unsheltered/Sheltered/Non-work (USNW).

The study took place in one Mid-Atlantic state (Maryland) which had a publicly funded state DD agency that provided long-term funding for individuals with DD and their families. In Maryland, students with DD who had an Individual Education Plan (IEP) generally received a certificate of completion rather than a diploma and received special education services until the end of the school year in which they turned 21 years old. These youth were then eligible to

apply for services from the state DD agency. The initial study sample included 572 TYDD in Maryland who received DD agency funded supports from one of 89 CRPs across the state.

Framework

The framework for this study was based on the findings from studies of employment outcomes for transitioning youth with disabilities and for adults with DD that identified predictor variables for favorable employment outcomes. These included: (a) demographic variables (disability, race, gender, severity of disability, SSI recipient status); (b) individual skill variables (self-determination, self-management, community mobility); (c) family variables (income, involvement); (d) school variables (inclusive education, community-based instruction, participation in post-secondary programs, work-based experiences, paid work); and (e) community variables (community setting, access to transportation, community economy).

Significance of Study

As school systems struggle to improve the post-school outcomes of students with disabilities pursuant to the requirements of Indicators 13 and 14, it is important to understand what secondary experiences contribute to integrated employments especially for students with DD. This is particularly important in light of initiatives in the field of adult services, especially for DD funding, to move towards integrated community options, including supported employment (Moon et al., in press). In addition, as students with DD are integrated into general education and community activities (Erwin, 1993), it is likely that

individuals and their families will desire integrated post-school employment outcomes.

At this point in time, we do not have a clear understanding of the employment outcomes for TYDD as they transition from school systems to agencies that provide ongoing supports and services for employment or day services. It is also unclear what variables impact supported employment outcomes. By examining empirically derived variables for a group of TYDD, this research contributes to the limited body of research on supported employment outcomes for TYDD in a number of ways. First, this work described the employment outcomes of TYDD in Maryland and is the first study to distinguish between individual supported employment and other supported work, which is critical to understanding the types of work activity TYDD are engaged in after leaving school. Second, this study examined the relative importance of relevant variables from five system levels, including demographic (gender, race, SSI status), individual skill (self-determination, self-management, community mobility), family (family support), school (school setting, work experience), and community (community economy). This study also made a distinction between unpaid, stipend, and paid work experience as a predictor variable, which captures the spectrum of work experiences that TYDD may have during their secondary school years. Finally, this correlational study is one of the first to examine the relationship between employment outcomes and (a) having a VR Counselor; (b) receiving funded supports prior to exiting school; (c) living with family members; and (d) family involvement.

In terms of previous research on employment outcomes for individuals with DD, most used individuals with disabilities or their families to self-report on employment outcomes once they exit the school system. In my study, I surveyed CRP personnel using the work of Cunningham and Altman (1993) and Moon et al. (in press) as a guide. The CRP respondents were able to provide accurate information about individuals' demographic characteristics and skills as well as family, school, and community factors from files housed at CRP. They also worked directly with a group of TYDD so they were able to more accurately individuals' employment experiences a year after they have transitioned from the school system to a CRP.

This is the first study that targets only TYDD. Therefore, the independent variables measured in this study were relevant to this specific population. For example, the secondary school experiences measured by this study were reflective of typical experiences for students with DD. The three levels of the dependent variable reflect the spectrum of employment outcomes for TYDD. By classifying the dependent variable into three meaningful categories and analyzing the data using a multinomial logistic regression model, this study builds on the existing research, which has predominantly used multiple regression or binary logistic regression with dichotomous dependent variables to study one aspect of employment outcomes (paid vs. unpaid or integrated vs. not-integrated). The clear definitions of the independent and dependent variables in this study provide a model for replication studies.

The findings from this study may be used to inform policy makers in both education and DD fields in terms of outcomes, funding needs, and . Professionals in secondary special education and DD should be able to use these findings to target better experiences, interventions and supports that will lead to integrated employment outcomes for more individuals with DD. Although CRPs often provide a spectrum of service models (e.g., sheltered workshops, OSW, ISE), it is critical that TYDD transition directly to supported employment, rather than sheltered alternatives for several reasons. Researchers have demonstrated that less than 12% of all sheltered workshop participants move on to integrated work (Bellamy, Rhodes & Albin, 1986). For individuals with DD who are not employed or those who are employed at sub-minimum wages, many will continue to rely on public assistance and participation in costly sheltered workshops, burdening the economy. Finally, national initiatives to move to “Employment First” for all individuals with DD will impact funding and services at CRP in the future.

Understanding the predictors that have a significant impact on employment outcomes will also assist individuals with DD, their families, and secondary special educators develop appropriate IEP goals related to desired employment outcomes and develop transition services that address these goals. This should assist school systems in reporting favorable outcomes for individuals with DD as they document post-school outcomes one year after they exit school system in compliance with Indicator 14 of the IDEA.

Definition of Terms

Community-Based Instruction- instruction focusing on social skills, domestic skills, and accessing public transportation in the community (White & Weiner, 2004).

Community mobility - the ability to travel independently to and from work/school/home by walking, taking public transportation, or driving.

Community Rehabilitation Providers (CRPs) are community agencies that provide various supports (including employment) to individuals with disabilities.

CRP staff members- individuals who work with individuals with DD at CRPs and were the respondents in this study.

Developmental disabilities - “a severe, chronic disability which: (a) originated at birth or during childhood, (b) is expected to continue indefinitely, and (c) substantially restricts the individuals functioning in several major life activities” (Developmental Disabilities Assistance and Bill of Rights Act). Examples of developmental disabilities include Mental Retardation/Intellectual Disability, Autism, Brain Injury, Cerebral Palsy, Down Syndrome, Fetal Alcohol Syndrome, and Spina Bifida (Developmental Disabilities Assistance and Bill of Rights Act).

Enclaves include individuals with disabilities working in groups under supervision of a CRP staff member in a community business (Lutfiyya, Rogan, Shoultz, 1988).

Individual Education Plan (IEP) - a plan that is developed to meet the needs of an individual student with a disability in the school setting under IDEA. The

IEP describes the present level of functioning, educational and transition goals, and the supports and services necessary to help the student meet those goals.

Integrated Classrooms - classrooms with same-age peers with and without disabilities.

Individual Supported Employment (ISE) - an individual job in the community paid at least minimum wage by a community employer.

Intellectual Disability- individuals with significantly below-average score on a test of mental ability or intelligence and by limitations in the ability to function in areas of daily life, such as communication, self-care, and getting along in social situations and school activities. Intellectual disability is sometimes referred to as a cognitive disability or mental retardation (Center for Disease Control).”

Integrated Employment- all jobs in the community where most people do not have disabilities. This includes individual supported employment, enclaves, and mobile crews (Butterworth et al., 2004).

Interagency Planning- collaboration between school systems, Vocational Rehabilitation, and the state DD agency. Evidence of interagency planning may include transitioning youth visiting CRPs or receiving VR and state DD agency funded supports prior to exiting school.

Mobile Crews- groups of individuals who travel together to work at various sites in the community (Lutfiyya, Rogan, & Shoultz, 1988). Examples include janitorial and landscaping crews who travel together to provide services to organization, agency, or individual.

Multi-modal Survey Research – survey research that includes more than one mode of data collection (e.g., online survey and paper version).

Other Supported Work (OSW) - paid community employment in an enclave or mobile crew and/or paid at less than minimum wage.

Paid Work Experience- work that is paid by an employer while students with disabilities are in secondary school.

Post-Secondary Education- age-appropriate school programs for older transition-age youth (18-21), housed on a college campuses or community locations or other coursework at institutions of higher education (e.g., community college, four year institution).

Self-Contained Classroom- a separate classroom for individuals with disabilities.

Self-Contained School- as a separate school for individuals with disabilities.

Self-Determination- the attitude and ability to make choices and advocate for oneself (Wehmeyer, 1992).

Self-Management- the ability to function independently (e.g., organization and self-care) without constant support (Agran, 1997).

Sheltered, Facility-based Work/Non-work Activities- any activities (vocational or recreational) that are provided to individuals with DD at the CRP facility.

Supplemental Security Income (SSI)- a monthly check from the federal government to provide for the basic needs of “aged, blind, and disabled people, who have little or no income” (<http://www.ssa.gov/>).

Supported Employment- a paid work in the community (White & Weiner, 2004) and can include individual jobs, enclaves, or crews.

State DD Agency- publicly funded state agencies in each state (sometimes referred to as MR or ID agencies). These agencies deliver day habilitation, residential, employment, respite, and employment support services to eligible individuals with developmental disabilities primarily through non-profit providers.

Stipend Work Experience- work experience in secondary school that was paid sub-minimum wage by the school or VR agency.

Transition Services- “a coordinated set of activities for a child with a disability that-- (A) is designed to be a results-oriented process, that is focused on improving the academic and functional achievement of the child with a disability to facilitate the child's movement from school to post-school activities, including post-secondary education, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation (IDEA 2004, P.L. 108-445)

Transitioning Youth with Developmental Disabilities (TYDD) - youth who exited the public schools in Maryland at age 21 and received state DD agency funded supports from a CRP and are referred to as the subjects in this study. The TYDD received supports in a variety of service models (sheltered employment, supported employment).

Typical High School- a public or private secondary school for students with and without disabilities.

Unpaid/Sheltered/Non-Work (USNW) - all unpaid, facility-based, and or non-work activities.

Unpaid Work Experience- work experience that was performed without pay (school or community based) during the school year.

Vocational Rehabilitation (VR) refers to programs of services funded under Title I of the Rehabilitation Act of 1973 that assists individuals with disabilities pursue careers through career assessments, training, and counseling.

Work-Based Experience- all work-related content, coursework, and experiences that a student has during school (e.g., job shadowing, mock interviewing, volunteer experiences, resume writing seminars, in-school jobs, and career fairs).

Work Experience paid or unpaid work during school.

Chapter 2: Review of Literature

The purposes of this study were to: (a) examine the levels of work activity, including supported employment, for TYDD who received funding from a state DD agency in one Mid-Atlantic state one year after exiting school; (b) identify the relationship of demographic (e.g., race), individual skill (e.g., self-determination), family (e.g., family involvement), school (e.g., school setting), and community (e.g., access to public transportation) variables to these outcomes; and (c) determine if individual skill, family, and secondary school experiences accounted for additional variance in supported employment outcomes after controlling for demographic and community variables. This chapter is divided into four sections. First, I provide the historical context for supported employment by tracing the concept of normalization and its impact on inclusion for youth and adults with DD. Next, I describe the types of research related to employment outcomes for transitioning youth and adults with DD. Then, I propose a framework for reviewing the literature and use this framework to organize a critical review of the research related to variables that impact employment outcomes for youth and adults with DD. Finally, in the chapter summary, I discuss the gaps in the research and describe my study in terms of contributions to the field.

Historical Context for Supported Employment

America's historic mistreatment of individuals with DD, including institutionalization, sterilization, and segregation has been well documented (Smith & Polloway, 1993). Coinciding with the United States' focus on civil rights in the 1960's, a researcher in Sweden, Bengt Nirje, developed the concept

of “normalization.” Proponents of normalization argued that “the mentally retarded [should] obtain an existence as close to the normal as possible” (Nirje, 1969, p. 19). Nirje stated that individuals with mental retardation should experience normal life cycles, rhythms, and routines including education, work, and leisure-time activities to the maximum extent possible and emphasized the concept of integration with people without disabilities (Nirje, 1969). Imbedded within this philosophy is the notion that individuals progress towards more typical experiences and settings when they are “ready.” Although the concept of normalization was initially used to frame the restructuring of residential services, it also greatly impacted the education and adult service delivery system across the United States.

While individuals with DD were once faced with institutionalization and segregation, individuals with disabilities and their families now have experiences, and thus expectations, for increasingly age-appropriate educational opportunities and adult outcomes. The policies and practices that have characterized the paradigm shift towards integration and opportunity for individuals with DD over the past generation are evident in both special education and adult services.

Historical Context for Integrated Education

Until the 1960’s and 1970’s youth with disabilities, especially those with DD, were largely segregated from their peers without disabilities. A number of advocacy movements and shifts in federal policy led the way for including youth with disabilities in school systems, the workplace, and community living situations (Sitlington, Neubert, & Clark, 2010).

Special education services.

Prior to the passage of the Education for All Handicapped Children Act (PL 94-142) in 1975, schools were not required to educate students with disabilities. The concepts of free and appropriate access to public schools and individualized planning and instruction were important aspects of PL 94-142. The act specifically stated that students should be “educated in the least restrictive environment (LRE)” defined as:

To the maximum extent appropriate, children with disabilities... should be educated with children who are not disabled, and... special classes, separate schooling, or other removal of children with disabilities from the regular educational environment should occur only when the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily (20 U.S.C. 412(a)(5)(B)).

The notion of “maximum extent appropriate” reinforces the “readiness” model in which students need to “be ready” for integrated education and most students were educated in segregated programs for individuals with disabilities. In 1986, noting that segregated programs did not provide quality educational opportunities for all students, then-Assistant Secretary for the Office of Special Education and Rehabilitative Services (OSERS) proposed that more students with disabilities should have access to general education classes (Will, 1986). Her proposal has been referred to as the Regular Education Initiative. In conjunction with continued parent advocacy efforts, the 1990 reauthorization of PL 94-142, the

Individuals with Disabilities Education Act of 1990, strengthened the federal commitment to greater inclusion (Public Law 101-476).

Terminology and classroom trends have shifted significantly since PL 94-142; now educators commonly refer to the concept of educating students alongside of their same-age peers with access to general education curriculum as “inclusion.” Erwin (1993) defined inclusion as being based on, “the premise that all individuals with disabilities have a right to be included in naturally occurring settings and activities with their neighborhood peers, siblings, and friends” (p. 1). This values-based philosophy transcends the classroom and has influenced the expected outcomes for TYDD.

Transition services.

As students with DD were included in schools, parents and teachers questioned what constituted an appropriate education for students who remain in schools until 21 or the age set by the State for exiting schools. The notion that youth with DD should learn age-appropriate skills alongside of same age peers challenged schools to develop programs that focused on integrated and meaningful adult outcomes (Sitlington et al., 2010).

Segregated adult outcomes for individuals with DD received attention from the U.S. federal government as early as the 1960’s. In 1961, President Kennedy established the President’s Panel on Mental Retardation (PPMR) to address what he deemed as the nation’s “failure” to address the problems of the “mentally retarded.” He stated:

Finally, the preparation of the mentally retarded for a useful role in society and industry must receive more attention. In the past five years the number of mentally retarded rehabilitated through State vocational agencies has more than tripled—going from 756 to 2500—but in terms of potential, it is little more than a gesture. The problem is complex. Neither special education nor special rehabilitation procedures furnish the complete answer to employment of the retarded, new knowledge and new techniques are needed, for over 25 percent of those coming out of the special classes still cannot be placed (Kennedy, 1961, p. 1).

The need to better prepare students with disabilities for adulthood continued and received heightened attention in the 1980's. In 1984, then-Assistant Secretary for the Office of Special Education and Rehabilitative Services (OSERS), Madeline Will introduced the concept of "transition" to employment in response to the poor adult outcomes for students in special education (Will, 1984a). While Will's concept initially focused on employment outcomes, it was expanded to include other adult outcomes (independent living, community participation postsecondary education, and adult services) (Sitlington et al., 2010). In 1990, the EHA was renamed the Individuals with Disabilities Education Act (IDEA) and mandated that students' Individualized Education Program (IEP) include transition services by age 16. The current definition of transition services in The Individuals with Disabilities Education Improvement Act of 2004 (P.L. 108-445) is:

a coordinated set of activities for a child with a disability that--

(A) is designed to be a results-oriented process, that is focused on improving the academic and functional achievement of the child with a disability to facilitate the child's movement from school to post-school activities, including post-secondary education, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation;

(B) is based on the individual child's needs, taking into account the child's strengths, preferences, and interests . . . ;

(C) includes instruction, related services, community experiences, the development of employment and other post-school adult living objectives, and, if appropriate, acquisition of daily living skills and functional vocational evaluation" [34 CFR 300.43 (a)] [20 U.S.C. 1401(34)]

Notable in this definition of transition planning is the concept that it should be "results oriented." Thus, transition planning for secondary students with DD must be aligned with desired adult outcomes for individuals with DD. The NCLB and IDEA 2004 have placed increased demands of accountability on school systems for the outcomes of all students, including those with DD, by requiring the use of "evidence-based" practices. IDEA 2004 also specifically outlines a requirement for states to evaluate their performance on priority indicators. In addition to tracking academic achievement for students with disabilities, states have to report on the "percent of youth aged 16 and above with

an IEP that includes coordinated, measurable, annual IEP goals, and transition services that will reasonably enable the student to meet post-secondary goals” (Indicator 13) and the “percent of youth who had IEPs, are no longer in secondary school and who have been competitively employed, enrolled in some type of postsecondary school, or both, within one year of leaving high school” (Indicator 14) (P.L. 108-445). As educators seek to identify evidence-based practices that improve adult outcomes for individuals with disabilities and meet the requirements of Indicators 13 and 14, research concerning less than desirable post-school outcomes proliferate the literature in special education (Butterworth et al., 2008; Repetto et al., 2002; Doren & Benz, 1998; Baer et al., 2003).

Historical Context for Integrated Employment

While parents of children with disabilities were advocating in the 1960’s and 1970’s for increased access to public education, a parallel movement towards increased opportunity in the community was occurring for adults with disabilities.

Vocational services.

In 1918, Congress established a vocational rehabilitation programs for soldiers returning from World War I and extended to civilians with physical disabilities in 1920 (Murphy & Rogan, 1995). In 1943, vocational rehabilitation services were made available to individuals with more significant disabilities (including DD). In the 1950’s, sheltered workshops and day settings emerged as an alternative to institutions for some individuals with DD. The workshops had two goals: a) to train adults for competitive employment and b) to provide long term or permanent employment sheltered for adults who were deemed incapable

of community employment (Murphy & Rogan, 1995). The emergence of this training model mirrored the “readiness” approach to educating students with disabilities in the least restrictive environment.

Similar to EHA (PL 94-142), the 1973 Rehabilitation Act focused on equal access to environments and mandated that programs and workplaces that received federal funds could not discriminate on the basis of disability (PL 93-122). However, adults with DD receiving ongoing supports by CRPs were primarily receiving day services in sheltered day or work settings (Brooks-Lane, Hutcheson & Revell, 2007). In the 1980’s, just as the special education service delivery model moved from segregated to integrated, the model of adult service delivery shifted towards an emphasis on integrated, age-appropriate adult outcomes for individuals with DD. In a 1984 OSERS position paper, then Secretary Madeleine Will emphasized the value of paid work in the community:

Employment is a critical aspect of the lives of most adults in our society . . . Paid employment offers opportunities to expand social contacts, contribute to society, demonstrate creativity, and establish an adult identity. The income generated . . . creates purchasing power . . . makes community integration easier, expands choices, enhances independence, and creates personal status (Will, 1984, p. 4).

Since work is a typical adult outcome for individuals without disabilities, federal legislation and the state DD agencies that funded CRPs identified “supported employment” as the preferred outcome for individuals with developmental disabilities (Mank, Cioffi, & Yovanoff, 2003).

Supported employment.

The definition of supported employment evolved through federal legislation. For example, the Developmental Disabilities Assistance and Bill of Rights Act of 1984 (P.L. 98-527) defined supported work as:

Paid employment which (i) is for persons with developmental disabilities for whom competitive employment [>20 hours weekly] at or above the minimum wage is unlikely, and who, because of their disability, need intensive, ongoing support in a work setting; (ii) is conducted in a variety of settings, particularly work sites in which persons without disabilities are employed; and (iii) is supported by any activity needed to sustain work by persons with disabilities, including supervision, training and transportation.

The 1998 reauthorization of the Rehabilitation Act (P.L. 105-220) defined the term “supported employment” as

...competitive work in integrated work settings, or employment in integrated work settings in which individuals are working toward competitive work, consistent with the strengths, resources, priorities, concerns, abilities, capabilities, interests, and informed choice of the individuals, for individuals with the most significant disabilities for whom competitive employment has not traditionally occurred; or for whom competitive employment has been interrupted or intermittent as a result of a significant disability; and who, because of the nature and severity of their disability, need intensive supported employment services ...

The regulations also established a minimum of twenty hours per week as the number of hours a supported employee may work and defined integrated work settings as having no more than eight individuals with disabilities in a workgroup and regular contact with non-disabled peers (Rusch & Hughs, 1990). The core concepts of these legal definitions were highlighted and promoted by TASH, the prominent professional organization for individuals with severe disabilities, their families, and advocates. In a 1989 resolution, TASH called for the “rapid and immediate development of individualized and integrated employment for all people with severe disabilities and the rapid and permanent replacement of segregated activity centers and sheltered workshops” (TASH, 1989, p. 1). TASH identified the key aspects of employment for all people with severe disabilities as:

Integration- Employment of people with severe disabilities must be in regular employment settings when they work alongside people without disabilities. Frequent and ongoing interactions and the development of relationships must be ensured.

Income and benefits- Employment must result in meaningful compensation for work performed and include benefits comparable to those of co-workers in similar positions.

Choice- Job selection and retention must be based on choice by individuals with severe disabilities.

Ongoing career advancement- Employment for persons with severe disabilities must be viewed as careers- over time job changes and

advancement occur in the interest of higher pay, greater responsibility and variety, better working conditions, and individualized interests.

Individualized and natural supports- The assistance and support provided persons with severe disabilities should be individualized according to needs and abilities and should maximize natural supports, provided by co-workers and friends in the workplace.

Equal access- Individuals with the most severe disabilities must be included immediately in the implementation of community, integrated employment.

(TASH, 1989, p.1)

Integrated outcomes were further emphasized by Vocational Rehabilitation (VR) in the 2001 amendments to the regulations governing the State Vocational Rehabilitation Program. Prior to 2001, sheltered work was considered a viable employment outcome for VR services. The 2001 amendments redefined “the term “employment outcome” (as it applies to the VR program) to mean outcomes in which an individual with a disability works in an integrated setting (State Vocational Rehabilitation Services Program, 2001). According to Brown, Shiraga, and Kessler (2006), integrated work environments are characterized by natural proportions (no more than 1% of workers should have significant disabilities). Brown emphasizes the importance of integrated work environments by saying that “workers with significant disabilities must work in sight, sound, and within reasonable distance of coworkers who are not disabled” (p. 114).

Each state has a DD agency that funds ongoing services through various funding categories, including supported employment, for individuals with DD through CRPs. Individual states have developed definitions of what kind of jobs are categorized as supported employment for individuals receiving ongoing supports from their respective state DD agency. Factors that differentiate the definitions include whether or not there is a minimum number of hours or minimum wage; whether or not the wage must be paid by the community business rather than the CRP; whether the proportion of total workers with disabilities or total supported employees cannot exceed a certain level and if so; how many can be employed at the same business or within the same department of the business during the same time (Mills, 2006). Some definitions allow for group models of supported employment, often referred to as enclaves or mobile crews. Enclaves consist of individuals working in groups under supervision of a CRP staff member while working in a place of business (e.g., restaurant, hospital). Crews consist of groups of individuals who travel together to work at various sites in the community (Lutfiyya, Rogan, Shoultz, 1988). Examples included janitorial and landscaping crews who traveled together to provide services to an organization, agency, or individual. Despite inconsistent definitions for supported employment, there is agreement that supported employment refers to paid work in the community. For the purpose of this study, “supported employment” is defined as a “placement in a paid community based job with non-disabled peers” (White & Weiner, 2004) including group models without requirements for specific wage, employer, or number of hours.

Research Related to Employment Outcomes for Individuals with DD

The two primary categories of research that explore employment outcomes for individuals with DD are: (a) follow-up studies of students with various disabilities exiting special education to determine employment, independent living, postsecondary education, and social outcomes (Baer et al., 2003; Benz, Lindstrom, Yovanoff, 2000; Benz, Yovanoff, & Doren, 1997; Blackorby & Wagner, 1996; Doren & Benz, 1998; Dunn & Shumaker, 1997; Grigal, Simonsen, & Vratarich, 2007; Hasazi, Johnson, Hasazi, Gordon, Hull, 2001; Heal & Rusch, 1995; Morgan, Ellerd, Jensen, & Taylor, 2000; Rabren, Dunn, Chambers, 2002; Wagner, 1991; Wagner, Newman, Cameto, Levine, & Garz, 2006; Wehmeyer & Palmer, 2003; White & Weiner, 1991) and (b) studies that describe the employment trends of adults receiving ongoing supports (Cunningham & Altman, 1993; Dixon & Reddacliff, 2001; Moore, Feist-Price, & Alston, 2002; Morgan et al, 2000; Olson, Cioffi, Yovanoff, & Mank, 2000). These outcome studies have explored numerous variables that are related to employment outcomes for individuals with DD. In this section, I introduce the special education follow-up studies and adult outcome studies. Next, I describe my proposed framework for organizing the findings from these studies. Finally, the findings from both lines of research are reported using my proposed framework.

Follow-Up Studies of Youth with Disabilities

Special education follow-up studies do not use the term “developmental disabilities,” rather students are described in terms of their educational disability

code (including Mental Retardation, Autism, Multiple Disabilities, and TBI) specified in IDEA. The Office of Special Education funded the first National Longitudinal Transition Study (NLTS) in 1985 to document the experiences and outcomes for a national sample of 8,000 youth with disabilities. The second wave of this longitudinal study, the NLTS2 included 12,000 youth with disabilities from across the country. Both waves of data collection used parent/guardian interviews, school characteristic surveys, student interviews, student assessments, teacher surveys, and transcript reviews. Findings from the NLTS indicated that students with disabilities had high rates of unemployment, worked fewer hours and earned less pay than their peers (Blackorby & Wagner, 1996). While the NLTS2 data released indicates employment outcomes for individuals with disabilities have improved, only 52% of subjects with mental retardation had been employed since exiting school (Wagner et al., 2006) and only 31% were employed at the time of the study. A major limitation of both NLTS studies is that the employment outcomes for the participating youth are measured through self-report data gathered only by parent and/or student interview. NLTS and NLTS2 do not include a reliability check to ensure accuracy of the employment outcome data that are reported.

Heal and Rusch (1995) identified three levels of employment (full-time paid community-based work, part-time paid community-based work, and other) as the dependent variable for their regression analysis of the 35 variables from NLTS dataset. Various student demographic, individual skills, and school experiences were identified as significantly related to paid, community work outcomes.

Numerous other researchers have conducted smaller follow-up studies (Baer et al., 2003; Benz et al., 2000; Doren & Benz, 1998; Fabian, 2007; Grigal et al., 2007; Moon, Neubert, & Simonsen, in press; Wagner et al., 2006; Repetto, Webb, Garvan, Washington, 2002; Wagner, 1991; Wehmeyer & Palmer, 2003) and examined the relationship between specific variables and employment outcomes. Moon et al. (in press) and Wehmeyer and Palmer (2003) analyzed the relationship between specific individual skills and employment outcomes. Baer et al. (2003); Benz et al. (2000); Benz et al. (1997), and White and Weiner (2004) examined secondary school practices that were correlated with post-school employment. Grigal et al. (2007); Neubert & Redd (2008); and Repetto et al. (2002) documented transition practices (e.g., post-secondary program participation, work-based experiences) that secondary schools were utilizing and the outcomes for the participating transitioning youth. Some of these studies were included in the National Secondary Transition Technical Assistance Center's (NSTTAC) review of correlation research of evidence-based practices for the field of secondary transition. NSTTAC specifically identified the need for research that examines the impact of work experience, self-determination, self-determination, and self-management skills on employment outcomes.

Special education follow-up studies have explored numerous variables that are related to employment outcomes for individuals with disabilities including individual skills (e.g., self-determination, self-management, community mobility) and secondary school experiences (e.g., curriculum, work experiences, interagency transition planning). The follow-up studies were typically conducted

one to several years after youth with disabilities exited the public school system and analyzed the relationship of various secondary school experiences (e.g., paid work, vocational education) on a dichotomous outcome variable (e.g., employed vs. not employed). Most follow-up studies did not focus specifically on TYDD, although they included this target population in the study sample.

Students with DD (often labeled as having Mental Retardation, Autism, TBI, or Multiple Disabilities in school) may have significantly different secondary school experiences than their peers (Yu, Newman & Wagner, 2009). For example, students with DD may not receive a standard high school diploma or qualify for vocational education, two predictors of post-school employment (Baer et al., 2003; Heal & Rusch, 1995). They may participate in a stipend-paid work training program for students with significant disabilities (Neubert & Redd, 2008). The need for ongoing supports by TYDD may also impact the type of outcomes TYDD obtain. For example, TYDD receiving ongoing supports from a CRP may work in a mobile crew with other peers with disabilities. In one follow-up study of youth in special education, individuals receiving long-term state funding from either the state DD or Mental Health agency were less likely to be employed (Rabren, Dunn & Chambers, 2002). These researchers noted that this was most likely “reflective of the level of functioning of those receiving those supports” (p. 29).

While studying the employment outcomes for recent public school graduates with disabilities can provide information about the impact of school variables (e.g., school setting, paid work experience), studies focusing on adults

with DD provide insight into the variety of contextual factors that may contribute to supported employment outcomes for individuals with DD.

Studies of Adults with Developmental Disabilities

A survey of state DD agencies showed that the national rate of supported employment for adults with DD increased 15 percentage points (from 9% to 24%) from 1988 and 2002 (Rizzolo, Hemp, Braddock, & Pomeranz-Essley, 2004). However, the rate of change in supported employment delivery has slowed dramatically since 2000 (Rusch & Braddock, 2004). In other words, while the rate of supported employment participants grew by 15 percentage points per year between 1988 and 2000, the rate of growth between 2000 and 2002 slowed to 3 percentage points per year. In this section, I discuss the trends in employment outcomes for individuals with DD since “supported employment” emerged in the 1980’s and I describe research that has identified variables correlated with these outcomes.

Despite federal policy shifts that reflect a commitment towards supported employment for individuals with DD, state DD agencies continue to invest in facility-based and non-work services (Butterworth et al., 2008). The Institute for Community Inclusion at the University of Massachusetts Boston (ICI/UMASS) has documented supported employment trends for more than twenty years. ICI’s *Access to Integrated Employment* project has collected national data from four sources: ICI’s Intellectual Disability/Developmental Disability Agency National Survey of Day and Employment Outcomes (1988-2007), and data sets from the Social Security Administration, Vocational Rehabilitation, and the American

Community Survey. Butterworth et al. (2008) found a large variance in individual state performance on integrated employment outcomes. They defined 'integrated settings' to refer to all jobs "in the community where most people do not have disabilities. [This] includes competitive employment, individual supported employment, and group supported employment including enclaves and mobile work crews" (p. 16). They report that according to The National Survey of Day and Employment Outcomes, the rates of integrated employment among individuals receiving daytime support services from CRPs ranged from 4% to 57% across states in 2007 (Butterworth et al., 2008). It is important to note that the survey relied on states to self-report data and many of the states reported the percentages of individuals who were receiving DD funding for supported employment rather than actual employment outcome.

In addition to documenting employment outcomes, researchers have sought to identify variables that impact the employment outcomes for adults with DD (Cunningham & Altman, 1993; Dixon & Reddacliff, 2001; Moore et al., 2002; Morgan et al, 2000; Olson et al., 2000). The focus of this research has centered on demographic variables (e.g., gender, race), family variables (e.g., family involvement, income), and community variables (e.g., urban vs. rural community type). In contrast to the special education outcome research, there is little emphasis on the individual skills and secondary school experiences that impact employment outcomes for transitioning youth with disabilities during their first years after they transition to a CRP.

Variables Related to Employment Outcomes

Levels of predictors.

Despite the lack of research about the predictors of supported employment outcomes for TYDD, research from the fields of special education and adult services provide important findings and methods for future research. One way to frame the findings from both fields for TYDD is to categorize the variables into various system levels. Luft and Rubin (1999) used this approach for evaluating twelve federally funded transition demonstration projects that ended in 1992/1993. They asserted that these projects focused on five system levels: (a) student variables, (b) family variables, (c) school variables, (d) organizational variables, and (e) community variables. Luft and Rubin based this framework on Bronfenbrenner's ecological interaction model, which states that an individual is influenced by the interactions among various systems (Bronfenbrenner, 1979; Rusch & Phelps, 1987). I used the categories from Luft and Rubin's framework to organize the findings from the literature about transitioning youth with disabilities and adults with DD. I synthesized the findings about predictor variables from research in both fields and grouped them by system levels (e.g., family, school). In the follow section, I describe the literature review process.

Search method.

Using the Educational Resources Information Center (ERIC) and Psych Info research databases, I entered the following search descriptors: "employment," "outcome," "disabilities," "developmental disabilities," "mental retardation," "intellectual disabilities," "competitive employment" and "supported

employment.” After examining the references from the articles obtained, I conducted an ancestral search of various periodicals related to employment outcomes for individuals with intellectual and other severe disabilities. I examined the index of the following periodicals: *Career Development for Exceptional Individuals*, *Exceptional Children*, *Research & Practice for Persons with Severe Disabilities*, *Journal of Applied Rehabilitation Counseling*, *Education and Training in Mental Retardation*, *Journal of Association of Persons with Severe Handicaps*, *The Journal of Special Education*, *Mental Retardation*, and *American Journal on Mental Retardation*. I selected studies that examined variables that predicted paid and/or integrated employment outcomes for students with disabilities and/or adults with developmental disabilities. I limited the search to studies published after 1990, when the transition mandates were first included in the Individuals with Disabilities Education Act.

The search yielded 19 (18 quantitative, 1 qualitative) studies. Ten studies were follow-up studies of transitioning youth with disabilities (Baer et al., 2003; Benz et al., 2000; Benz et al., 1997; Doren & Benz, 1998; Dunn & Shumaker, 1997; Fabian, 2002; Heal & Rusch, 1995; Rabren et al., 2002; Wagner (1991); Wehmeyer & Palmer, 2003; White & Weiner, 2004) and four studies examined variables that were correlated with the employment status of adults with DD (Cunningham & Altman, 1993; Morgan et al., 2000; Moore, Feist-Price, Alston, 2002; Olson et al., 2000). Four additional studies examined variables related to employment outcomes for young adults with developmental disabilities (Conley, 2007; Dixon & Reddacliff, 2001; Moon et al., in press; Repetto et al., 2002).

Initially, studies that examined outcomes of a particular intervention or program were eliminated from my review. However, I decided to include two additional studies because of their significance to integrated employment outcomes for TYDD (Grigal et al., 2007; Redd, 2004). In a conference presentation, Grigal et al. (2007) described preliminary data on the employment outcomes for transitioning youth with intellectual disabilities who participated in post-secondary programs on college campuses in two states. Redd's dissertation (2004) also described the services and employment outcomes for students with intellectual disabilities who participated in a post-secondary program on a college campus. These studies were important to include because of the potential impact on integrated employment outcomes. The final search included 21 studies that explored the relationship of predictor variables to the employment outcomes of transitioning youth and/or adults with developmental disabilities. For a summary of the reviewed studies, see Appendix A2.

Eleven of the 21 studies focused primarily on individuals with DD. Ten studies included participants with various disabilities, but included individuals with DD in the study sample. A broad range of terms used to describe the target population in the studies including mental retardation, significant disabilities, severe disabilities, and intellectual disabilities. The correlational studies used a variety of statistical analyses, including correlations, chi-square, logistic regression, and multiple regression. Modeling the work of NSTTAC, I chose to convert the significant relationships to standardized effect size measures when possible to compare the findings across studies. Effect sizes from studies using

Pearson r correlations were not altered. Odds ratios from studies that used logistic regression analysis were converted to tetrachoric approximations (Digby, 1983; NSTTAC, 2010) using the equation $r = (OR^{3/4} - 1) / (OR^{3/4} + 1)$. R^2 from studies using multiple regression analysis were converted to Cohen's f^2 effect size statistics (Cohen, 1977, NSTTAC) using the equation $f^2 = R^2 / (1 - R^2)$. The multiple R^2 in the study (Heal & Rusch, 1995) that used hierarchical multiple regression was converted to effect size using the equation $f^2 = (R^2_{AB} - R^2_A) / (1 - R^2_{AB})$. For the seven studies that were included in the NSTTAC literature review, I attempted to confirm the effect sizes reported. I found two errors and a number of values were missing. For example, NSTTAC only reported effect sizes for three of the five significant predictor variables in the study by Benz et al. (1997). Similar to the literature review conducted by NSTTAC, I used Cohen's effect size appraisal system. Following Cohen's appraisal system, values for effect sizes for Pearson correlations were: a) small: $.10 \leq r < .30$, b) medium: $.30 \leq r < .50$; and c) large: $r \geq .50$. For multiple R^2 : a) small: $f^2 = .02$, b) medium $f^2 = .15$, c) large: $f^2 = .35$ (Cohen, 1977). I did not calculate effect sizes for studies that did not provide enough information.

Framework for Study

Similar to Luft and Rubin (1999), my framework includes individual level, family level, school level, and community level systems. In contrast to Luft and Rubin, I chose to partition out the demographic variables (e.g., race, gender, severity of disability) from the individual skill variables (e.g., self-management, self-determination) for two reasons. Demographic variables are categorical and

less subjective than measures of student skill variables. Additionally, unlike individual skill variables, student demographic variables are fixed and are not subject to intervention. My framework also did not include an emphasis on organizational variables. Luft and Rubin (1999) used the term “organizational” to refer to the collaboration between various stakeholders in the transition process. I chose to include a measure of interagency collaboration as a construct within my school variables system level because interagency collaboration has been identified as a promising secondary school practice (Foley, Butterworth, & Heller, 2000; Benz, Johnson, Mikkelsen, & Lindstrom, 1995; Morningstar, 2008). In summary, my framework organizes the findings from the literature by the following system levels: (a) demographic variables (e.g., race, gender); (b) individual skill variables (e.g., self-determination, self-management); (c) family variables (e.g., income, family involvement); (d) school variables (e.g., paid work experience, school setting); and (e) community variables (e.g., access to transportation, community economy). I describe the findings related to each variable from both fields. It should be noted that because the Heal and Rusch (1995) included variables from all five system levels, I include findings from their study within the synthesis of the findings from the other studies.

Comparison study. While most of the 21 studies I reviewed reported findings about selected variables, Heal and Rusch (1995) conducted a large-scale study of the impact of 35 individual variables from five levels (demographic, individual skill, family, school, and community) on employment outcomes for transitioning youth with disabilities. The data were part of the first wave of the

National Longitudinal Transition Study (NLTS) and included 2,405 participants with disabilities who had exited the school system. After identifying school districts that served secondary students with disabilities and special schools that served underrepresented populations (e.g., deaf, blind, and deaf-blind), the researchers obtained rosters from schools and selected students using a weighted sampling design. Of the students identified as being out-of-school youth, 72% reported their post-school employment status. This final sample included a cross-categorical sampling of youth with disabilities, including individuals with DD whose primary educational disability was recorded as mental retardation, autism, or traumatic brain injury.

Heal and Rusch (1995) used data from the NLTS parent survey, school records, and a school program survey to enter the independent variables in 15 ordered blocks into a hierarchical regression analysis and analyze the relationship of these variables to post-school employment as the dependent variable. Heal and Rusch excluded sheltered and/or unpaid work in their study, which made their dependent variable closely aligned with the definition of supported employment used in this study. An a priori and disciplined approach to constructing a model was used in order to account for Type I errors. This is the only study that reports the relationship of variables from all five system levels on employment outcomes for individuals with disabilities. I chose to compare the findings of Heal and Rusch (1995) to the findings related to each variable. In the following section, I discuss the findings related to variables from all five system levels and when

applicable, compare those findings to those of Heal and Rusch (1995). These findings are outlined in Tables 1 and 2.

Demographic variables. A number of researchers have tried to identify demographic variables that are correlated with employment outcomes for individuals with disabilities. Although most of the research has not focused specifically on individuals with DD but included this population in the sample, some key findings are important. Ten studies explored the impact of demographic variables on employment outcomes for youth with disabilities (Baer et al., 2003; Cunningham & Altman, 1993; Benz et al., 1997; Benz et al., 2000; Doren and Benz, 1998; Fabian, 2007; Heal & Rusch, 1995; Moore et al., 2002; Olson et al., 2000; Rabren et al., 2002). Many of the studies identified the disability status of learning disabilities as a predictor for employment outcomes among students with disabilities (Baer et al., 2003; Cunningham & Altman, 1993; Doren & Benz, 1998; Heal & Rusch, 1995). Since the focus of this study is on individuals with DD and the majority of students labeled as having a learning disability do not meet the criteria for developmental disability in adult services, this finding is not relevant. Studies exploring the impact of gender, race, severity of disability, and SSI recipient status on employment outcomes for individuals with disabilities are briefly summarized.

Gender. Seven of the 21 studies reviewed identified a relationship of gender on employment outcomes for individuals with disabilities (Baer et al., 2003; Benz et al., 1997; Doren & Benz, 1998; Fabian, 2007; Heal & Rusch, 1995; Olson et al., 2000; Rabren et al., 2002). In a descriptive follow-up study of

students with disabilities, Baer et al. (2003) used a logistic regression analysis to identify student characteristics that were associated with full-time employment (defined as 32 hours weekly) after graduation. The researchers surveyed 140 randomly selected graduates of special education who were either one or three years out of school in four communities in Ohio. This sampling procedure did not account for students who had dropped out of school. Although 21% of the study's participants were individuals identified as having mental retardation, data were not reported by disability category. For the aggregate population, female gender was found to be negatively correlated with full-time employment but gender was not included in the final logistic regression model.

Rabren et al. (2002) found similar results during another follow-up study of 1,393 former special education students who exited from one of the 37 school districts in Alabama that served as demonstration sites for a systems-change grant. Using phone interviews, the researchers identified the employment status for these graduates one year after exit. Using a logistic regression model to analyze the impact of demographic factors on employment outcomes, Rabren et al. (2002) found that female gender was a significant predictor of having full-time employment after school. Only 25% of the participants who reported being employed one year after graduation were female. While 81% of the employed males were working full-time, only 19% of the employed females were working full-time. Noting the possible impact of the overrepresentation of males identified as having learning disabilities, Rabren et al. conducted a hierarchical logistic regression model to mediate the effects of disability status as a factor and found

that gender was still a predictor of full-time employment for youth with disabilities ($p < .001$, $ES = -.09$).

Similar to Rabren et al. (2002), Fabian (2007) controlled for the subjects' disability in a study that examined the employment outcomes of 3,929 urban youth with disabilities one year after exiting school. The subjects were predominantly minority (93%) and all had participated in the Marriott Foundation's Bridges from School to Work Program between 2000 to 2005. The Bridges staff conducted follow-up interviews with individuals and families and consulted school records. After screening variables for entry into a logistic regression model, Fabian developed a logistic regression model for predicting employment. Gender emerged as a salient predictor ($p < .001$, $ES = -.11$); the odds ratio of .75 means that female students were 1.33 times less likely to be employed than males.

Doren and Benz (1998) also found a correlation between gender and paid employment that was at least 20 hours per week (referred to as "competitive employment"). Using student interviews, parent interviews, and teacher questionnaires to measure "in-school" components and student and parent interviews to measure "post-school" components, data were collected about student, family, school, and community variables. Doren and Benz clearly defined the predictor variables and incorporated inter-rater reliability procedures to ensure the reliability of the findings. Gender was a significant predictor of competitive employment; 47% of young women were employed one year out of school as compared to 72% of young men. Similar to the Rabren et al. (2002) and

Fabian (2007) studies, this discrepancy was evident even when disability status was controlled.

Doren and Benz (1998) also used logistic regression to analyze the relationship between other predictor variables and competitive employment to determine if there were differential patterns of predictors across gender. Three predictor variables unique to the female participants were identified: family income level, self-esteem, and the two-way interaction between family income and self-esteem. Doren and Benz categorized the participants' family income as low if it was below \$25,000. Young women in this category were 6.58 times less likely to be competitively employed one year after school than young women with disabilities whose families' income was equal to or greater than \$25,000. Young women characterized as having low self-esteem when they exited school were three times less likely to be competitively employed one year post-exit. The findings were not disaggregated for disability.

Similar to Doren and Benz (1998), Benz et al. (1997) included interaction effects in a logistic regression model for predicting competitive employment for 327 youth with and without disabilities one year after exiting school. The two way interaction between gender and disability was a significant predictor; females with disabilities were five times less likely to be competitively employed than their peers (odds ratio=.20, $p<.01$, ES=-.54). The findings for this study were also not disaggregated by disability and report findings that pertain to individuals with developmental disabilities.

In a study that specifically focused on individuals with developmental disabilities, Olson et al. (2000) conducted a two-part survey of CRP staff that supported 561 participants with intellectual disabilities in eight different states. Participants worked in individual jobs or small group placements (eight or fewer). Although the sample was not random, it was similar to a large sample of over 100,000 people in supported employment used in a large-scale study by Wehman, Revell, and Kregel (1997). CRP staff completed a 62 item survey that measured demographic and employment outcomes information for CRP clients. Olson et al. (2000) field-tested and revised the survey to ensure the validity of the findings and reported test-retest reliability results for a randomly selected 12% of the study population. For the first wave, the agreement was 74% and for the second wave, it was 87%, indicating a high degree of reliability. Although data analysis revealed significant gender differences in the number of hours worked weekly [males=23.01, females=20.24, $t(414) = 2.35, p < .05$] from the first wave of data collection, these differences did not exist in the combined dataset. For the total study sample, females worked slightly fewer hours per week (22.27 compared to 21.37) and earned less money per month (\$560.31 compared to \$613.13).

Olson et al (2000) also had CRP staff rate the extent to which the job features (e.g., job duties, compensation) resembled the features of other employees (1= not typical and 7= quite typical). Olson et al. (2000) reported no statistical significant differences in the ratings on the “typicalness” scale between males and females but a pattern did emerge. Females scored lower than males on the typicalness of the job duties and compensation survey items. Sample

questions, descriptions of the survey items, or reliability or validity information for this survey were not provided, making further analysis difficult.

The findings from Heal and Rusch (1995) also paralleled these six studies in that female gender was found to be significant predictor of part-time and full-time employment. Only one study explored the impact of gender specifically on the employment outcomes for individuals with DD, but the overall findings suggest that gender is a strong predictor of employment outcomes for transitioning youth and adults with disabilities.

Race/ethnicity. The impact of race on employment outcomes for transitioning youth with disabilities has received less emphasis than gender in the literature. Two studies identified a relationship between race and employment outcomes for individuals with disabilities (Heal & Rusch, 1995; Moore et al., 2002). Moore et al. explored the impact of race on vocational rehabilitation (VR) employment outcomes and income. The vocational rehabilitation records of 188 former clients with severe/profound mental retardation in one Midwestern state's VR were reviewed. Although the criteria for selecting participants were described, it is not clear if random or purposeful sampling was used to select participants. Thirty three percent of the participants (n=62) were African American and 67% (n=126) were defined as European American. Moore et al. conducted a logistic regression to analyze the relationship between two or more predictor variables and employment outcomes. Although this study did not focus on individuals receiving long-term supports from CRPs, race had a significant effect ($p<.001$) on employment outcomes for adults with DD. The authors

theorized that the impact of race on closure status was greater for individuals with severe and profound disabilities and described this as the “severity-race correlative theory.”

Heal and Rusch (1995) also found support for the hypothesis that race is a significant predictor of employment outcomes. Caucasians were significantly more likely to be employed in non-sheltered, paid work one year after exit than non-Caucasian peers. They suggested additional research should explore the impact of race on the integrated supported employment outcomes for TYDD (Heal & Rusch, 1995; Moore et al., 2002).

Severity of disability. The impact of disability severity has also been studied as an independent variable on employment outcomes. Although dated, a national sample of individuals with mental retardation living in residential facilities in 1987 showed that severity of disability was correlated with employment outcomes (Cunningham & Altman, 1993). Caregivers of the 3007 participants were asked to provide detailed demographic information and to describe the characteristics and employment status of the residents. Jobs were characterized as “sheltered” or “non-sheltered,” although these outcomes were not clearly described. Cunningham and Altman used a logistical analysis to analyze the impact of the measured variables on “non-sheltered” employment status and found that individuals categorized as having mild or moderate disabilities were significantly more likely to be employed in “non-sheltered” settings than those with severe or profound mental retardation ($p < .001$).

Although Cunningham and Altman (1993) did not clearly define “mild,” “moderate,” “severe,” or “profound” mental retardation, the DSM- III- R (1987), which was in circulation at the time of this study defined levels of IQ by range. These included: (a) mild mental retardation ($50 \leq IQ \leq 69$); (b) moderate mental retardation ($35 \leq IQ \leq 49$); (c) severe mental retardation ($20 \leq IQ \leq 34$); and (d) profound mental retardation ($IQ \leq 20$). Thus, Cunningham and Altman (1993) asserted that individuals whose IQ was 35 or higher were significantly more likely to be working in non-sheltered settings. By collapsing the categories and grouping all of the individuals with an IQ of higher than 35 points into one category, the findings from this study may not have practical significance to students with mild/moderate mental retardation. An additional limitation is the study was that it relied on IQ score to define severity of disability, rather than account for the individual’s adaptive skills and level of support needs.

SSI recipient status. Cunningham and Altman (1993) also analyzed the impact of SSI status on employment outcomes using the same data set. Information about whether or not the individuals received SSI was obtained from a next of kin or other person knowledgeable about the individual. Of those employed, SSI recipients were significantly less likely to be employed in non-sheltered settings than those not receiving SSI. While 17.7% of non-recipients were employed in non-sheltered settings, only 9.7% of recipients were employed in non-sheltered settings. Although these findings suggested that receiving SSI was negatively related with integrated employment, there are limitations to this conclusion. The variables of “sheltered” and “non-sheltered” employment were

not clearly defined and did not differentiate between paid and unpaid work. Additionally, the data were collected in 1987, prior to the passage of numerous SSI work incentive programs for individuals with disabilities. Finally, SSI is targeted to individuals who are unable to earn a living wage, which might suggest that the recipients' disabilities are more severe or there are other barriers to employment that the authors failed to discuss (<http://www.ssa.gov/>).

Cunningham and Altman (1993) did not report the odds ratios for their logistic regression analyses therefore it is not possible to calculate the effect size to determine the practical significance of SSI as a predicting variable. In contrast, Fabian did report the odds ratio (.80, $p < .05$) for SSI. Although SSI was found to be a statistically significant unique predictor of employment one year after school, the effect size of .09 means that receiving SSI does not have a practical significance for this study sample.

Heal and Rusch (1995) found that receiving public assistance was negatively correlated with non-sheltered paid employment outcomes. Although they did not report specifically on the impact of receiving SSI, these findings do suggest that additional research should focus on the impact of receiving SSI on individuals with DD while controlling for other variables to determine if SSI is negatively correlated with supported employment outcomes. In summary, despite limited research about the impact of demographic variables on employment outcomes for TYDD, each of the four identified variables from the demographic system level (race, gender, severity of disability, and SSI recipient status) were

found to have a relationship with employment outcomes for individuals with disabilities.

Individual skill variables. In addition to demographic variables, researchers have sought to identify specific skills that lead to improved post-secondary outcomes for individuals with disabilities; however, many of these studies have not specifically focused on integrated employment outcomes for TYDD (Wehmeyer & Palmer, 2003). Three studies (one survey and two follow-up studies) examined specific individual skills that may impact employment outcomes for TYDD (Heal & Rusch, 1995; Moon et al., In press; Wehmeyer & Palmer, 2003).

In a survey of CRPs, Moon et al. (in press) found that self-management, self-determination, and general community functioning skills were identified to impact supported employment outcomes for TYDD. Rather than interview students, families, or teachers, Moon et al. (in press) surveyed twelve CRP providers in one Mid-Atlantic state to determine what skills were perceived as critical to supported employment outcomes for TYDD. Individual skills/experiences from six domains: (a) vocational (e.g., “has had a paid job), (b) recreation (e.g., can use community recreation facilities), (c) general community functioning (e.g., can use public transportation), (d) self-management/home living (e.g., washes hands at appropriate times), (e) academic (e.g., tells time to the hour), and (f) social/self-determination/communication skills (e.g., expresses preferences) were rated on a 3-point likert scale (1= critical and 3= not critical) and the mean scores were reported and collapsed into domain means. The survey

categories were developed through a review of the literature and piloted with CRP staff in one mid-Atlantic state. The two skill domains rated most critical for supported employment by the CRPs were self-management, with a mean score of 1.51, and social/self-determination/communication, with a mean score of 1.54. The vocational and general community functioning domains both had a mean score of 1.78. This study examined the perceptions of CRP staff rather than analyzing the impact of these characteristics on the employment outcomes for transitioning youth. While the small sample size limits the generalizability of these findings it does suggest that in addition to vocational experience, specific student skills (specifically social/self-determination/communication skills, self-management skills, and general community functioning skills) do impact integrated employment outcomes.

Self-determination. Self-determination can be defined as “the attitudes and abilities required to act as the “primary causal agent in one’s life and to make choices regarding one’s actions free from undue external influence or interference” (Wehmeyer, 1992). Self-determination skills were validated as a predictor of post-school employment status in a seven state follow-up study of 94 young adults with learning disabilities or mental retardation by Wehmeyer and Palmer (2003). At graduation, participants were given *The Arc’s Self-Determination Scale*, a 72-item self-report scale that measures the components of self-determination (autonomy, self-regulation, psychological empowerment, and self-realization). Adequate descriptions of the criterion-related and construct validity and cite numerous other studies that used this instrument were included.

The participants were grouped into high/low groups according to their scores on the scale. The high self-determination group scored at least one standard deviation above the mean score and the low group scored at least one standard deviation below the mean score. These two groups were compared across multiple outcome variables, including post-secondary employment status. Using a chi-square analysis, the researchers determined that the students in the high self-determination group were significantly more likely to hold a job at the time of the study, hold a part-time job, hold a full-time job, and hold a job since high school. Despite the potential for increased Type II errors caused by using the dichotomized self-determination variable (Irwin & McClelland, 2003), these findings reinforce the importance of self-determination in predicting employment outcomes for transitioning youth with disabilities.

Wehmeyer and Palmer (2003) also conducted discriminant function analysis to measure the degree to which self-determination scores and intelligence tests scores predicted employment outcomes. Using the Tests of Equality of Group Means, significant differences in self-determination scores were found across all of the employment outcome variables, except full-time employment status. Although Heal and Rusch (1995) did not specifically identify the impact of self-determination on supported employment, the findings from Moon et al. (in press) and Wehmeyer and Palmer (2003) do suggest that self-determination impacts employment outcomes for individuals with DD.

Self-management skills. Self-management can be defined as “the ability to independently function in any environment without constant supports, prompts,

or direction” (Agran, 1997, p. 16) including self-care and behavior skills. While Moon et al. (in press) explored the perceptions of CRP staff about the importance of self-management skills, Cunningham and Altman (1993) and Heal and Rusch (1995) found a relationship between scores on self-management rating instruments and employment outcomes. Heal and Rusch (1995) used the NLTS data from parent surveys to analyze the impact of self-management skills on non-sheltered, paid work outcomes for transitioning youth with disabilities. Participants’ self-management skills were measured by summed scores on a parent survey which examined 12 self-care items (e.g., dresses independently, feeds self independently). Skills on this self-management measure were strongly correlated with post-school employment.

While the Heal and Rusch (1995) study focused on transitioning youth, Cunningham and Altman (1993) found similar results in their survey of caregivers of adults with mental retardation living in residential settings. Respondents reported on the residents’ self-management skills. The respondents rated the residents’ ability to independently perform six activities of daily living (e.g., bathing, dressing, and eating). The number of activities of daily living (ADLs) the resident had difficulty with was entered into a regression analysis as a predictor variable. While 70% of residents with no reported difficulties in ADLs had a paid job, only 13% of residents who had difficulty with three or more ADLs had a paid job. The number of ADLs that a person had difficulty with was negatively correlated with non-sheltered work settings as well. The findings from the Heal and Rusch (1995) and Cunningham and Altman (1993) studies are

consistent with the importance that CRP staff reported in the Moon et al (in press) study.

Community mobility. Community mobility can be defined as the ability to travel independently to and from work/school/home by walking, taking public transportation, or driving. Moon et al (In press) found that the three highest rated “general community functioning skills” as rated by CRP staff as being critical to supported employment were: (a) uses caution with strangers, (b) crosses street safely, and (c) can problem-solve if lost. All three variables related to community mobility. Heal and Rusch (1995) also noted the importance of community mobility to employment outcomes and identified the characteristic “has used specialized transportation in the past” as being negatively correlated with post-school employment. They noted that when the disability category was controlled for, the correlation was not statistically significant. This finding has practical significance as regardless of disability type, community mobility will likely impact access to employment options.

In summary, although researchers have explored the impact of many student attributes on employment outcomes, three specific skills from the individual skill system level have been identified as being important for successful employment outcomes for TYDD: self-determination, self-management, and community mobility.

Family variables. The transition from special education to the adult service delivery system for TYDD signals a change in the families’ roles related to advocacy, financial, logistical, and moral support of the individual. Two

follow-up studies of students with disabilities (Doren & Benz, 1998; Heal & Rusch, 1995) and one qualitative study of competitively employed young adults with DD (Dixon & Reddacliff, 2001) examined the impact of family variables on employment outcomes.

Family income. Doren and Benz (1998) analyzed follow-up data from a study of students with disabilities in their last year of high school and one year after they exited. The representative sample of participants was taken from two western states and included individuals labeled as having mental retardation (12%). The authors used student and parent interviews along with teacher questionnaires to measure a number of variables while the students were in school (e.g., school services, quality of life in school, school achievement) and follow-up parent and student interviews to measure variables related to post-school outcomes.

Family income was defined as greater or less than \$25,000 annually although the rationale for using this criterion was not included. The criteria did not account for the number of people living in one household or cost of living in the respective communities. Doren and Benz (1998) disregarded a number of variables found to be unrelated to the outcome variable and identified family income to be a significant predictor variable for female participants ($p < .001$, $ES = .64$) but not for male participants. Of practical significance, young women with disabilities with a household income of less than \$25,000 were 6.58 times less likely to be competitively employed one year after high school than their peers with a household income of more than \$25,000.

Heal and Rusch (1995) did not find a gender discrepancy for the impact of income on employment outcome. Analysis of the NLTS data revealed that family income was a strong predictor of post-school employment. This study used the same annual income (\$25,000) as Doren and Benz (1998) to rate participants as having a high socioeconomic status. As the data for these studies were collected in 1987 and 1991 respectively, these income thresholds need to be updated in future research. Neither of the reviewed studies reported findings by disability.

Family support and involvement. Another variable that has been explored in the research is the concept of “family support.” Dixon and Reddacliff (2001) used a qualitative approach to explore family variables that contributed to the competitive employment status of adults with mild intellectual disabilities in Australia. The 15 participants (eight male, seven female) were ages 19-30 years old and were all employed competitively for at least six months in a variety of fields. The individuals had traditional family structures; none of the families had experienced divorce or separation and all but one of the families owned their own home. The families were of lower to middle income and except for one family, both parents were employed. The use of purposeful sampling was appropriate for this descriptive qualitative study (Maxwell, 2005).

Dixon and Reddacliff (2001) adequately described their adherence to rigorous, ethical qualitative methods (including triangulation and member checks) by describing the methods for data collection extensively. The authors taped and transcribed the interviews and used content analysis by two researchers to analyze

the transcripts. However, the coding categories that emerged were not described in relation to the literature.

Participants “saw their families as being highly supportive of their efforts to gain and maintain employment” (Dixon & Reddacliff, 2001, p. 198) and the following themes emerged: (a) supportive families; (b) protection; and (c) cohesion. Support provided by the families included practical assistance in addition to moral support and role modeling. The authors noted that families were actively involved in the logistics related to the young adults’ employment, including money management and transportation. One mother reported that she had found the job for her adult child and scheduled the initial interview while another described that she assisted her adult child complete job applications. The fact that all but one of the families had two parents working gave the participants role models with strong work ethic. The emergent theme of protection related to protection inside and outside the workplace. The participants noted examples of times that their families had intervened when they were discriminated against or upset at work or contacted the job support agency to advocate on their behalf.

Dixon and Reddacliff (2001) also identified a tendency for families to protect individuals from risk and failure and underestimate the young adults’ strengths. They also characterized the cohesiveness of these families and described the high level of involvement of the parents have in their adult children’s lives. All participants lived at home and depended on their families for daily living tasks that would typically be handled independently by young adults.

The findings from this qualitative study suggest that a high degree of family involvement is related to employment outcomes for adults with DD.

In their survey of CRP staff about barriers to supported employment outcomes for transitioning youth with developmental disabilities, Moon et al. (In press) found that respondents discussed the importance of family support for supported employment goals. Participants discussed parents' lack of support for paid employment and fear about the loss of benefits as a major barrier to employment outcomes. The existing research highlights the importance of family system level variables on post-school employment for students with disabilities. Researchers have shown that family income was related to employment outcomes for transitioning youth with disabilities and that high degrees of family support and involvement were related to employment outcomes for young adults with DD.

School variables. Although transition planning and recommended secondary school experiences for youth with disabilities have been described extensively over the past two decades, (Kohler & Field, 2003; Phelps & Hanley-Maxwell, 1997), there is a lack of empirical evidence-based practices. My search produced nine studies that identified school-based variables that positively impacted post-secondary employment (Baer et al., 2003; Benz et al, 2000; Grigal et al., 2007; Heal & Rusch, 1995; Rabren et al., 2002; Redd, 2004; Repetto et al., 2002; Wagner, 1991; White & Weiner, 2004). Although the authors used different terminology to describe secondary school practices, I collapsed these variables into the following categories (a) least restrictive environment/integrated education (LRE), (b) post-secondary program participation, (c) community-based

instruction, (d) work-based experiences, and (e) paid work experience in high school.

LRE/integrated education. White and Weiner (2004) explored the impact of educational setting on employment outcomes by conducting a three-year follow-up of students with severe disabilities in Orange County, California. It was unclear how the sample of 104 students (ages 18-22) from 20 different schools in twelve different school districts in this study was obtained. White and Weiner (2004) sorted the participants into four settings by LRE characteristics: (a) segregated (a school site composed of only students with disabilities), (b) segregated adjacent (a classroom adjacent to a regular high school or on the same campus separated by a fence), (c) integrated non-age appropriate (classrooms interspersed on a high school campus), and (d) integrated age-appropriate (a classroom or meeting room located on a college campus). While 14.7% of graduates from the segregated settings were employed after exit, 69.2% of the graduates from the integrated age appropriate (college) settings were employed. White and Weiner (2004) did not differentiate between the types of employment outcomes. Therefore no conclusions can be drawn about the impact of integrated education on integrated supported employment outcomes. Another significant limitation is that White and Weiner (2004) did not control for severity of disability, individual skills, or other variables that may have mediated the effect of integrated settings on employment outcomes. Despite these limitations, the findings from this study suggest that integration with same-age peers is positively correlated with employment outcomes.

While the field has endeavored to identify specific school experiences that impact employment outcomes, a promising model for providing integrated, community-based education to students with disabilities ages 18 to 21 has emerged. As White and Weiner (2004) noted, post-secondary programs, often housed at colleges, provide students with DD access to same-age peers and authentic learning opportunities in real-world environments. The impact of participation in these post-secondary settings has been the focus of two studies included in this review.

Post-secondary program participation. Similar to the findings from White and Weiner (2004), Grigal et al. (2007) found that a higher percentage of participants in post-secondary programs had paid employment at time of exit from school. They reported outcome data on transitioning youth from three post-secondary programs (two in Maryland and one in Connecticut) that received federally funded technical assistance. Based on teacher reports, most participants had paid employment at time of exit (88% for Maryland; 92% for Connecticut). Although Grigal et al. (2007) reported a high degree of integrated educational opportunities, as measured by student participation in college level courses, other program characteristics and experiences were not described. These findings were presented at a symposium and methodology information was not reported. Little is known about the data collection or analysis process for this study. Similar to the limitations of the White and Weiner (2004) study, there is no information about the severity of disability, individual skills of the TYDD or other variables that could mediate the effect of the post-secondary program on employment

outcomes. Another obvious limitation is that the findings are reported for three programs that were identified as exemplary for the purpose of grant supported research. Additionally, paid employment outcomes are not clearly defined and there is no information provided to determine if the jobs were integrated or facility-based.

Redd (2004) did document the integrated nature of the employment outcomes for participants in a case study of a post-secondary program on a college campus that served 16 youth with developmental disabilities (ages 19-21). The triangulated data documented limited community-based instruction experiences (e.g., limited use of public transportation). Only three of the 16 students had independent job experiences while participating in the program. Post-school data were collected about 18 former program participants who had exited in the previous three years. Despite student and family expectations that students would work in paid community jobs after exiting the program, after exiting, of the 16 students who received long-term supports by CRPs only two (12.5%) were working in independent jobs. The majority of the graduates (n= 14, 87.5%) worked in enclaves with other CRP clients with disabilities. It is not known whether or not these were paid positions. Although the findings from this qualitative study cannot be generalized, they suggest that mere placement on a college campus may not be positively correlated with post-school supported employment outcomes. Neubert and Redd (2008) suggested that future research should document the impact of secondary special education practices in post-secondary programs on employment outcomes such as community-based

instruction and work-based experiences.

Community-based instruction (CBI). White and Weiner (2004) defined community-based training (CBT) as “instruction in non-school environments” focusing on “social skills, domestic skills, accessing public transportation, and included on-the-job training (p. 152).” They divided the percent of time participants spent in community-based training into four quartiles and then compared the percentage of graduates who were employed one year past exit across these quartiles. Graduates who spent the highest percentage of time in CBT (75%- 100%) had the highest employment rate (64.3%). Graduates from the lowest quartile (0%- 25%) had the lowest employment rate (15%). The authors concluded that time spent in CBT had statistical significance and was positively correlated with employment for youth with severe disabilities. Students who participated in integrated age-appropriate settings (college campuses) accounted for 26 of the total 28 students in the highest CBT quartile, which makes it difficult to determine if these variables are independent of one another. Still, the findings suggest that education in non-school environments positively impacted post-school outcomes for youth with severe disabilities (ES=.39).

Work-based experiences. Researchers have explored the impact of various work-based experiences, depending on the study population and existing secondary school practices on the employment outcomes of transitioning youth (Baer et al., 2003). In this section, I summarize the research related to WBE. For the purpose of this study, “work-based experiences,” includes all work-related

content, coursework, and experiences that a student has during school (e.g., job shadowing, mock interviewing, volunteer experiences, resume writing seminars, in-school jobs, and career fairs). Using a logistic regression analysis in their follow-up study on 140 randomly selected graduates of special education from Ohio, Baer et al. (2003) identified work-based experiences, specifically participation in work study and vocational education to be associated with full-time employment (defined as 32 hours weekly) after graduation. Although work-study or vocational education was not defined clearly, the findings support the hypothesis that work-based experiences improve post-secondary employment outcomes for young adults exiting school.

Wagner (1991) also examined the impact of vocational education on post-secondary outcomes (Wagner, 1991) using data from the first wave of the NLTS, which is the same data set used by Heal and Rusch (1995). The study was included because the NLTS data set includes individuals with DD. The rigorous methodology and nationally representative sample size enhances the Wagner's findings. Wagner defined vocational education broadly, including all coursework that is prevocational or prepares students for job-related skills. This included home economic courses, computer courses, and other coursework related to specific labor market areas. Wagner found 72.1% of students with mental retardation as the primary disability had taken at least one vocational education course while 66.8% of individuals labeled as having multiple handicaps (before the IDEA category was changed to "multiple disabilities") participated in

vocational education coursework. Few students in either category participated in coursework related to a specific occupation.

Based on parent reports, Wagner (1991) found that students with disabilities who participated in vocational education while in high school were significantly more likely to be employed for pay one year after leaving high school (51% versus 38%). After conducting a multivariate analysis to mediate for the impact of other variables, vocational education was shown to have a nine percent increase in the post-school employment rate for the aggregate population. Wagner asserted that if vocational education included work experience, the likelihood of post-school employment increased by an additional five percent. Similar to Wagner, Fabian (2007) identified previous work experience as a significant predictor of post-school employment ($p < .001$, $ES = .11$) for urban participants in an internship program. A hallmark of the internship program was the opportunity for paid employment, another variable that has been identified as an important predictor of post-school employment.

Paid work experience. Paid work experience for students with disabilities in secondary school emerged as a separate category in three additional studies. Benz et al. (2000); Dunn and Shumaker (1997); and Rabren et al. (2002) analyzed the impact of having paid work experience during school on post-school outcomes. In a small follow-up study of transitioning youth with learning disabilities, behavioral disorders, or mental retardation, Dunn and Shumaker (1997), conducted phone interviews with students ($n=68$) one year past exit. Fifteen of these participants were identified as having mental retardation but the

results are not disaggregated by disability. For the aggregate sample, having a paid job during high school was significantly correlated with post-school employment. While only 56% of youth who did not participate in paid work during high school were employed one year past high school, 93% of the youth who did participate in paid work during school were employed. Despite the small sample size, the findings suggest that paid work during high school is positively related to post-school employment ($\chi^2=12.50, p<.01$).

Two studies with larger sample sizes also identified paid work during school as a significant predictor employment (Benz et al., 1997; Benz et al., 2000). Benz et al. (1997) examined the relationship of demographic, school program, and functional skill variables on competitive employment, defined as paid work more than 20 hours weekly for 212 students from Oregon and Nevada through student and parent interviews. Data was collected through a computer-assisted telephone interview technology (CATI) with a high degree of interviewer agreement (98%). After following the logistic regression model building strategy proposed by Hosmer and Lemeshow (1989), paid work experience (measured by having two or more jobs in the last 2 years of high school) was a salient predictor. The odds ratio of 2.03 ($p<.01, ES=.26$) meant that students with two or more job experiences were twice as likely to be in competitive employment.

Paid work experience was also identified as a significant predictor of full-time work by Benz et al. (2000) in their study of the post-school outcomes for 709 participants in Oregon's Youth Transition Program (YTP), referred by school

staff for having barriers to transition success (e.g., teenage parenting responsibilities, limited job experience). Trained staff collected data on students during school and for up to two years after exit. The authors used logistic regression procedures to examine student and school program factors that impact full-time employment outcomes (defined here as working at least 35 hours weekly). Work experience was significantly related to full-time employment outcomes (OR=1.80, $p<.001$, ES=.22). Students who held two or more jobs during school were almost twice as likely to be working full-time as the students who did not have two or more jobs during school.

The importance of paid work in high school was reinforced by Rabren et al., (2002) who found that students in their follow-up study (1,393 former special education students in Alabama). Those who were employed at time of exit from high school were 3.8 times more likely to be employed one year after exit. Of the students with disabilities who were employed at exit, 87% were employed one year later. The field-tested instruments were administered by trained teachers from the participating school districts (LEAs). While the authors reported a response rate of 55%, data were only included for 49% of the program participants. Additionally, the overrepresentation of students with learning disabilities may limit the findings in relation to individuals with DD.

The existing research that explores the relationship of work-based experiences, including paid work, does not focus on TYDD and often does not accurately measure the types of work experiences that students have during secondary school years. Students with DD may or may not have access to

eligibility-based work training programs such as vocational education or career academies (Yu et al., 2009). In Maryland, many students with DD participated in unpaid work enclaves and/or school-paid stipend jobs. The enclaves would consist of multiple students with disabilities working together in the community with a job coach. Although some students earning stipends worked independently, the jobs were not paid by an employer. Moon et al. (in press) found that some of the CRP staff they interviewed specifically described the lack of authenticity of unpaid or stipend work experience.

Interagency planning. Interagency planning was defined as collaboration between schools, Vocational Rehabilitation, and the state DD agency. Evidence of interagency planning may include transitioning youth visiting CRPs or receiving VR and state DD agency funded supports prior to exiting school. Minimal empirical research has been focused on the impact of interagency planning on employment outcomes for individuals with DD although the concepts of collaborative transition planning are often mentioned in the literature (Foley et al., 2000; Benz et al., 1997). Researchers have documented incidences of interagency planning but rarely connect these practices to outcomes (Kohler & Field, 2003). During Redd's (2004) case study of a post-secondary program for 18 young adults with developmental disabilities, many of the students were documented as working with the supports of CRPs prior to exit, although there was no shared or blended funding arrangement between the school system and the CRP. Nine of the participants who participated in CRP enclaves prior to exit continued to participate in the CRP enclaves after graduation. Although the

students experienced a seamless transition to post-secondary employment, this study does not support the link between interagency collaboration and integrated supported employment outcomes.

In their study of school districts in Florida, Repetto et al. (2002) were also unable to correlate interagency planning to employment outcomes for their study participants. The researchers collected information about the members of interagency planning teams, the formal interagency agreements, and the community services available. Although the availability of community services for young adults with disabilities increased during the three waves of data collection and there were documented interagency collaborative efforts, no correlation was made between interagency collaboration and employment outcomes for transitioning youth with disabilities. This study did not specifically explore the relationship between interagency collaboration and integrated supported employment for TYDD.

Two studies included in this review were not able to correlate secondary school practices on post-school outcomes (Heal & Rusch, 1995; Repetto et al., 2002). Rather than study the transition outcomes of individual students, Repetto et al. (2002) examined a transition services database of 67 school districts in Florida to investigate the relationship between school variables and post-school outcomes, including employment. The researchers collected brochures, curricula, and other forms of media to create a database of available transition practices and participating districts documented the availability of literature-based transition practices by completing a checklist. The checklists were completed by a

“transition contact” for each site with supervisory responsibilities. Outcome measures were computed based on the percent of students from each district who were employed after school exit. None of the transition program characteristics (e.g., career education, employment, vocational assessment) were found to be significantly related to employment outcome percentages. However, this study has significant limitations that should affect interpretation of the findings. While the data documented the existence of transition program characteristics in the district, it did not document transition service utilization and employment outcomes for individual students. Additionally, in one of the three waves of data collection, the response rate was only 43%.

Heal and Rusch (1995) were not able to correlate school program characteristics identified in the literature to employment outcomes. The NLTS dataset included data from a school questionnaire about the general school program. LRE characteristics were assessed by using a rating scale in the school survey to measure the “extent of school integration.” CBI was measured by rating (on a 7-point likert scale) the frequency of community trips. WBE was measured by rating the schools’ frequency of vocational education placement activities. While none of these measures were defined clearly, an obvious limitation was that these ratings did not portray the school experiences of the individual study participants.

In summary, researchers have sought to identify specific secondary school practices that lead to the best adult outcomes. Although there is a limited body of research about supported employment outcomes for TYDD, findings from the 21

studies reviewed showed that specific secondary school practices (e.g., integrated education, community-based education, participation in a post-secondary program, work-based experiences, paid work experience, interagency planning) were correlated with employment outcomes for youth with disabilities.

Community variables. My search produced six studies that identified community-based variables that positively impacted post-secondary employment (Baer et al., 2003; Heal & Rusch, 1995; Morgan et al., 2000; Conley, 2007; Butterworth et al., 2008; Cunningham & Altman, 1993).

Community setting. Two follow-up studies (Baer et al., 2003; Heal & Rusch, 1995) and one descriptive study of student and adult employment (Morgan et al., 2000) examined the impact of community setting (rural, suburban, urban) for individuals with DD. Baer et al. (2003) also explored the impact of community setting on transition activities and employment outcomes. Using a logistic regression model on survey data of 140 randomly selected special education graduates, Baer et al. (2003) found that being from a suburban school setting had a significant unique relationship with full-time post-school employment. The researchers calculated a .300 odds ratio ($p < .01$), meaning that students in suburban school settings were more than three times less likely to be employed full-time after school. The type of community setting was also related to the types of work-based experiences that students participated in. (e.g., vocational education, work study, resume writing). Whereas the graduates from rural school settings reported more in-school jobs, extracurricular participation, and job shadowing; urban school graduates reported having fewer in-school jobs,

fewer jobs during high school, less access to career exploration activities, and higher participation in regular academics, informational interviews, and resume writing classes. Suburban graduates reported more vocational education and less informational interviews, resume writing, career exploration, and job shadowing. Although the impact of disability on outcomes was analyzed, findings were not reported for individuals with DD. This study affirmed that the type of community impacts employment outcomes of youth with disabilities. It also reinforced the notion that access to specific work-based experiences may impact post-school outcomes. A limitation of this study was that community setting variables (rural, suburban, and urban) were not clearly defined.

In contrast, Morgan et al. (2000) clearly defined community settings as their independent variable in a large scale survey of 7,553 employment placements. This was for a twelve month period and included 389 transition programs for youth with disabilities and adult employment programs for individuals with disabilities. Rural areas were defined as a population less than 20,000 and being 10 miles away from the closest city exceeding 20,000 people.

Morgan et al. (2000) identified the relationship between community settings and job placements for participants. Participants were selected by using a random numbers table to select transition programs from school directories and a published list of adult providers. Participants were asked to categorize the employment placements for their students/clients by level of support (e.g., individual placement, enclave work, community crews, own business, or other) and by the Dictionary of Occupational Titles (DOT) job categories (e.g., food and

beverage preparation and services, building and related occupations, etc.).

Individual placements were the most common type of employment. However, the data indicated that respondents selected more than one category to describe a single student's/client's placement. Given the lack of clarity over the definitions of integrated employment, this finding is questionable.

After categorizing job placements by definitions, Morgan et al. (2000) conducted a regression analysis and identified the impact of urban/rural community characteristics on the type of job placements for individuals with disabilities. An acceptable effect size (ES) of .50 was applied to determine the statistical significance of urban/rural locations. Placements in production, stock clerk, and related occupations were more probable in urban communities (ES=.53). Typing, filing, and related occupations (ES=.34) and computing and account records occupations (ES=.34) meet a minimum standard effect size and were more probable in urban communities.

Despite the fact that the authors provided definitions of "urban" and "rural," the definitions may not reflect the typical American community and did not include a "suburban" category. Additionally, it may be difficult to capture the data from CRPs that serve urban, rural, and suburban communities. An additional limitation of this study was that the response rate for the adult program participants was extremely low (35%). The sample was not limited to individuals with DD but the findings support the notion that the type of community impacts employment outcomes. It is important that future research clearly and logically define the community setting for practical implications.

Access to public transportation. Both Moon et al. (In press) and Heal and Rusch (1995) identified transportation skills as important student variables that impacted supported employment outcomes for youth with disabilities. Rather than focus on transportation skills, Conley (2007) identified lack of access to transportation as a barrier for adult individuals of CRPs in Maryland.

Since many individuals with DD receive long-term supports from CRPs, staff from these agencies can provide valuable post-school employment data. In 2007, Conley conducted one-on-one interviews with CRP staff members in charge of their respective vocational programs from 24 CRPs in Maryland (85% response rate) about barriers to successful supported employment. The participating CRPs varied in size, from 57 to 4550 individuals. The respondents were asked to identify barriers to supported employment for their individuals and to provide suggestions for improving access to supported employment. Lack of access to reliable, safe transportation was reported by participants as a significant barrier. While the CRPs reported that 65% of the individuals used van transport and 8% were driven in cars driven by staff members, narrative data indicates that van transport was not typically available on weekends or evenings, which limited vocational options for individuals who relied on CRP transportation.

In regards to availability of public bus and Para transit services, 18/24 respondents indicated that these services were available to their individuals. Conley (2007) reported that only 20% of individuals used public buses to get to work. Respondents indicated that buses were not always wheelchair accessible and did not always go to job sites. Conley used anecdotal data to highlight the

use of specialized Para transit services as unreliable. Only 15% of individuals made use of Para transit services to go to work.

Conley (2007) explained that the identification of transportation as a barrier to successful supported employment outcomes may be underestimated by CRP staff since many individuals are receiving facility-based services and do not travel in the community. Although Conley acknowledges the limitation of having respondents self-report outcome data, he did not adequately describe the interview tool or data analysis. Nevertheless, this study highlights the impact of transportation as a significant community variable on supported employment outcomes.

Community economy. Butterworth et al. (2008) noted that data from The American Community Survey, a large scale national survey conducted by the U.S. Census bureau indicated a strong degree of correlation between the employment rates for people with and without disabilities across states. Using a rank-order correlation, Butterworth et al. (2008) found a moderate to strong relationship ($r = .671$) between employment rates for people with and without disabilities. The range of gaps in employment rates for people with and without disabilities ranged from 24.2 percent to 45.3 percent. Maryland had a gap of 35.1 percent.

Cunningham and Altman (1993) also identified a relationship between the local economy and the employment rate of adults with mental retardation living in residential facilities. The predictor variable in their study was the residents' counties' per capita income. Those residents who lived in the poorer counties were significantly less likely to be working than those in wealthier counties. A

limitation to this finding is that residents who resided in the same county may have lived in the same facility and the effect of the facility itself on the employment rate might have confounded the relationship. In summary, three variables (community setting, access to public transportation, community economy) in the community systems level have been correlated with employment outcomes for youth and adults with DD.

Summary

The paradigm shift towards integration for individuals with DD has been evident in both education and employment settings since the 1960's. Legislation and policy have guided services to evolve towards integrated outcomes in school, employment, and community settings. Despite this emphasis on integration, individuals with DD continue to have high rates of sheltered post-school outcomes. Although transition services have been mandated since 1990 in students IEPs, the recent emphasis on accountability for post-school outcomes (Indicator 14) in IDEA 2004 should create an impetus for identifying practices that enhance the employment outcomes for TYDD. In addition, transitioning youth with DD generally are referred to state DD agencies during the transition process in hopes of accessing long-term funding for supports and services for employment and independent living. Since the percentage of individuals with DD who move from facility-based services to integrated outcomes is extremely low (Bellamy, Rhodes, & Albin, 1988), it is essential to understand what types of employment transitioning youth experience during their first few years after exiting school.

In this chapter, 21 studies were identified that examined employment outcomes for transitioning youth with disabilities or adults with DD. These studies yielded information about empirically derived variables for improving post-school outcomes such as supported employment. In addition, the variables identified in these studies provided the framework for my study. The review of these 21 studies also allowed me to identify some gaps that I incorporated into my study. For example, the follow-up studies that included youth with disabilities did not generally account for secondary school experiences that students with DD might participate in. For example, students with DD generally do not participate in career and technology education programs (vocational education) or in general education content courses. Vocational education and integration in academic courses are variables identified in the literature as being significantly related to post-school outcomes. Rather, students with DD who remain in school until age 21, may participate in unpaid enclaves and mobile crews during the late secondary years or in programs based at postsecondary sites (e.g., a community college) to learn community based skills and participate in paid and unpaid employment experiences (Inge & Moon, 2006; Redd, 2004). My survey included these secondary programs/activities for TYDD.

The review of studies that examined employment outcomes for adults with DD tended to focus on demographic, community and contextual variables (e.g., race, gender, SSI recipient status, local economy, community setting) and generally did not account for secondary school experiences. Additionally, it is likely that adults that exited school prior to the IDEA transition services mandate

in 1990 have experienced different employment outcomes than those individuals with DD who have recently exited the school system.

Although most of the studies that examined predictors of employment outcomes for transitioning youth with disabilities and adults with DD focused on one or two systems (demographic, individual skill, family, school, community), I could find one study that examined variables from all five system levels (Heal & Rusch, 1995). By including variables from all five system levels, Heal and Rusch (1995) accounted for the complexities of factors that are related to employment outcomes for transitioning youth. However, Heal and Rusch (1995) focused on all transitioning youth with disabilities and the outcomes are not reflective of the types of outcomes individuals with DD receiving ongoing supports from CRPs may participate in (e.g., enclaves, mobile crews). There is clearly a significant gap in the research related to identifying relevant variables that are significant predictors of supported employment for TYDD.

This study addressed the gaps in the literature by surveying CRP staff that worked specifically with TYDD one year after exiting school. The method provided a unique way to capture accurate employment data and information about predictor variables. Twelve of the 14 reviewed correlational studies reviewed in this chapter relied on self-report data to identify the employment outcomes for the subjects. Because employment is a socially desirable outcome, there are significant concerns about the validity of self-report employment data (Fowler, 1995). My survey respondents provided information about demographic, individual skill, family, school, and community variables due to

their access to school and adult service records. In addition, some of these individuals worked with TYDD on daily basis; thus they were able to accurately describe the subject's employment outcomes so that I could code them as individual supported employment (ISE), other supported work (OSW), or unpaid/sheltered/non-work activities (USNW). This provides a more accurate reflection of real employment outcomes for transitioning youth with DD.

Chapter 3: Research Methodology

The purposes of this study were to: (a) examine the employment outcomes for TYDD who received funding from a state DD agency in one Mid-Atlantic state one year after exiting school; (b) identify the relationship of demographic (e.g., race), individual skill (e.g., self-determination), family (e.g., family involvement), school (e.g., school setting), and community (e.g., access to public transportation) variables to these outcomes; and (c) determine if individual skill and secondary school experiences accounted for additional variance after controlling for demographic, family, and community variables. Specifically, the study answered the following research questions:

1. What are the employment outcomes for TYDD who receive supports from a CRP one year after exiting school?
2. How are demographic, individual skill, family, school, and community variables related to employment outcomes for TYDD?
3. Do individual skills, family variables, and secondary school experiences account for additional variance after controlling for demographic, family, and community variables?

In this chapter, I describe the study method, setting, instrument, and the procedures used to develop and administer the survey instrument and analyze the data.

Method

To address my research questions, I used multi-model survey research. Survey research is an appropriate way to measure a large number of variables

across a large population (Nardi, 2003). In order to provide choice to the survey respondents, I developed both a computer-administered, self-interviewing (CASI) and a paper version self-administered questionnaire (SAQ). The survey was sent to CRP staff members who worked with TYDD one year after exiting school in 2008 in Maryland. The respondents completed the surveys about a specific TYDD with whom they worked and were asked to describe the employment outcomes for the TYDD and to provide information about multiple predictor variables (e.g., gender, race, self-management skills, and school setting). The respondents were employed CRP professionals who had at least a high school diploma, and who were able to read and respond in English to the survey questions. Some were able to complete the survey on a computer at work making the CASI and the SAQ appropriate modes for the study (Saris & Gallhofer, 2007; Nardi, 2003; Fowler, 1988). Some of the respondents served as job coaches in the community, rather than working in the agency building. These respondents had limited access to a computer during the work day so providing a paper SAQ version was intended to encourage participation and increase my response rate. The response mode effects were minimal because there was no interviewer present in either version of the survey (Tourangeau, Rips, & Rasinski, 2008; Saris & Gallhofer, 2007). The theoretical drive of the study was deductive so the survey was predominantly quantitative (Johnson & Onwuegbuzie, 2004; Morse, 2003).

Setting

This study was implemented in one Mid-Atlantic state (Maryland) with a total estimated population of 5,633,597 (U.S. Census Bureau, n.d.). The racially and ethnically diverse state was 58.1% White (not of Hispanic origin), 29.5% African American/Black, 6.3% Hispanic/Latino, 5.0% Asian, .30%% American Indian or Alaskan Native, and .10% Native Hawaiian or Pacific Islander. Additionally, 1.6% of the population self-identified as being two or more races (U.S. Census Bureau, n.d.). The population was most densely populated in the central part of the state with 24 counties, ranging in population from 24,747 to 873,341 (U.S. Census Bureau, n.d.). The diversity of the state was also reflected in the strength of the local economies. While the state unemployment rate in February 2009 of 7.2% was below the national average of 8.9%, the unemployment rates for the 24 counties ranged from 5.2% to 16.5% (U.S. Bureau of Labor Statistics, n.d.). The following section provides a brief description of the long-term funding and supports available for individuals with DD in this State including a special initiative through which TYDD accessed these funds after exiting school.

DD Agency and CRPs in Maryland

Like all 50 states, Maryland had a publicly funded state DD agency that provided long-term funding for individuals with DD and their families. The DD agency determined eligibility for services for individuals with DD prior to age 22. Individuals could apply for services and then were assigned a case manager who helped facilitate the eligibility determination process. Once an individual was

determined eligible for specific categories of funding from the DD agency (e.g., behavioral support services, day services, supported employment services, residential services), he/she was typically placed on a waiting list for the funding, which had more than 16,000 people in 2008 (The Arc of Maryland, 2009). Once the individual was cleared to receive the DD funding, he/she selected a CRP to provide services. The CRP then developed and submitted a service plan to the DD agency outlining the specific supports and services (including day services and/or supported employment) it intended to provide to the individual. The DD agency then provided the funds targeted for an individual to the CRP for these supports and services. Day services included day habilitation services (facility-based non-work activities) and day vocation (facility-based work-related activities). Supported employment included all community-based employment, such as individual paid placement at an employment site with periodic support (referred to in this study as Individual Supported Employment) or enclaves or mobile crews. Enclaves consisted of several individuals working in a group under supervision of a CRP staff member at a place of business (e.g., restaurant, hospital). Mobile crews consisted of groups of individuals who traveled together to work at various sites in the community under the supervision of a CRP staff member (Lutfiyya et al., 1988). Examples included janitorial and landscaping crews who traveled together to provide services to an organization, agency, or individual. In this study, enclaves and mobile crews are described as Other Supported Work (OSW). Although individuals are funded under funding categories, CRPs are not required to limit the services to the individual. Thus,

individuals funded under day services may be engaged in supported employment and individuals funded under supported employment may be engaged in sheltered work or other non-work activities.

In Fiscal Year 2008, the DD agency in Maryland provided funding to 10,183 individuals for day services or supported employment (C. Gauruder, personal communication, May 13, 2009). The DD agency in Maryland was part of the Supported Employment Leadership Network (SELN), an interstate collaborative designed to help states increase their capacity to develop, implement, and support effective employment initiatives to promote integrated employment outcomes (including individual placements, enclaves, crews) for individuals with DD. State DD agency staff had an advisory committee and several workgroups to develop policies, regulations, and strategies for improving the integrated employment outcomes of individuals with DD in various CRPs across the state. One strategy was to set annual benchmarks for employment outcomes for individuals receiving DD agency funded supports from CRPs. However, prior to this study, the state DD agency did not keep track of employment outcomes for individuals receiving ongoing supports from a CRP and thus had no baseline data from which to set goals. A national study reported 38% of individuals receiving DD agency funding in Maryland received funding for supported employment while 62% participated in facility-based models of services (Butterworth et al. 2008). However, this data was based on funding categories (e.g., day services or supported employment funding), rather than specific employment outcomes (e.g., individual placement, mobile crew).

CRPs.

There were 89 CRPs throughout Maryland that provided day services or supported employment for individuals with DD. These CRPs provided a range of services and supports for 20 to 2500 individuals with disabilities. While some provided services only to individuals with developmental disabilities, some served individuals with various disabilities. While CRPs generally provided a variety of employment, services, some were working towards restructuring services to provide more supported employment options in line with the state's policy and funding shifts towards integrated employment.

Transitioning Youth Initiative.

In Maryland, public schools determined whether students receiving special education services were eligible for a standard diploma or a certificate. Students who pursued a certificate were eligible to receive special education services until the end of the school year in which they turned 21 years old. These students generally participated in the State's alternative assessments. Students with DD who applied to and were eligible for DD agency funding had an opportunity to participate in the Transitioning Youth Initiative (TYI). This state-funded directive began in 1989 to provide coordinated and seamless services to transitioning youth with developmental disabilities (e.g., supported employment, day services). The initiative involves collaborative efforts between the schools, the VR agency, and the DD agency. Participants in this initiative were to receive practical job skills training in school, comprehensive transition planning, application to the VR agency prior to their final year in school, access to available

summer employment programs, and VR funded supports (e.g., job coaching and job development) while the individual was still in school. As students turn 21, they received long-term funding from the DD agency the summer after they exit the school system rather than being put on the state's waiting list for services. This TYI funding was provided for approximately 500-600 TYDD each year. These TYDD were the subjects in the present study.

Survey Instrument

Development of the Survey

After an extensive literature review in the areas of transition and supported employment, I identified 18 variables (e.g., self-determination, family involvement, work experience) that researchers identified as predictors of favorable employment outcomes for youth with disabilities or adults with DD (See Table 1).

Table 1.

Summary of Research by Variable

Variables	Findings from Literature
Gender	<p data-bbox="532 522 1349 741">Female gender was negatively related to employment outcomes for adults with disabilities (Baer et al., 2003; Doren & Benz, 1998; Heal & Rusch, 1995; Olsen et al., 2000; Rabren et al., 2002); although after accounting for other variables (through regression models); gender had a significant unique effect in only two studies (Fabian, 2007; Rabren et al., 2002).</p> <p data-bbox="532 779 1312 848">Women with intellectual disabilities worked fewer hours and earned less money than their male peers (Olsen et al., 2000).</p>
Race/Ethnicity	<p data-bbox="532 890 1365 995">African-American participants were significantly less likely than European Americans to have positive employment outcomes in a study of vocational rehabilitation clients (Moore et al., 2002).</p> <p data-bbox="532 1033 1338 1104">Caucasians were more likely to be in non-sheltered, paid work, than their non-Caucasian peers (Heal & Rusch, 1995).</p>
Severity of Disability	<p data-bbox="532 1146 1365 1287">Individuals identified as having “mild” or “moderate” disabilities were more likely to be employed in “non-sheltered” settings than those with “severe” or “profound” mental retardation (Cunningham & Altman, 1993).</p>
SSI Recipient Status	<p data-bbox="532 1329 1325 1434">SSI recipients were significantly less likely to be employed in non-recipients (Cunningham & Altman, 1993; Fabian, 2007; Heal & Rusch, 1995).</p>
Self-Management Skills	<p data-bbox="532 1476 1312 1581">Community Rehabilitation Providers (CRPs) identified self-management skills as “critical” to supported employment for individuals with significant disabilities (Moon et al., 2008).</p> <p data-bbox="532 1619 1289 1690">Self-management skills were strongly correlated with post-school employment (Heal & Rusch, 1995).</p> <p data-bbox="532 1728 1357 1797">Difficulty with self-management tasks was negatively correlated with non-sheltered work (Cunningham & Altman, 1993).</p>

Variables	Findings from Literature
Community Mobility	General community functioning skills (including community travel skills) were described as “critical” to supported employment for individuals with significant disabilities by CRPs (Moon et al., 2008).
Income/SES	Low income (family income of < than \$25,000/year) was negatively correlated with employment one year after exiting school (Heal & Rusch, 1995) and competitive employment (Doren & Benz, 1998).
Family Support	Family support (moral and logistical) was both positively correlated with employment outcomes for young adults with intellectual disabilities in a qualitative study (Dixon & Reddacliff, 2001).
LRE/Inclusive Education	Family’s expression of a preference for SE was identified as important to SE outcomes in a survey of CRP staff (Moon et al., in Press). Integration with same-age peers was positively associated with post-school employment (White & Weiner, 2004).
Post-Secondary Program	Post-secondary program participation was associated with higher rates of post-school employment (White & Weiner, 2004). Post-secondary program participants were engaged in high rates of post-school employment in one study of two exemplar programs (Grigal et al., 2007) but not in a qualitative case study of one program (Redd, 2004).
Community- Based Instruction	“Instruction in non-school environments” was positively correlated with post-school employment (White & Weiner, 2004).
Work-Based Experiences	Work study participation and vocational education were significant predictors of full-time employment (32 hrs. weekly) after school (Baer et al., 2003) and post-school employment (Fabian, 2007).
	Vocational education participants were 9% more likely to be employed post-school (Wagner, 1991) than their peers.

Variables	Findings from Literature
Paid Work	<p data-bbox="532 344 1349 449">Paid work during high school was correlated with paid employment after school (Dunn & Shumaker, 1997; Benz et al., 2002)</p> <p data-bbox="532 491 1349 596">Paid employment at exit from school predicted employment one year after exit. Individuals employed at exit were 3.8 times more likely to be employed one year after exit (Rabren et al., 2002).</p>
Interagency Planning	<p data-bbox="532 638 1295 743">Interagency planning was documented for postsecondary program graduates with low rates of supported employment (Redd, 2004).</p> <p data-bbox="532 785 1295 848">Interagency planning was not correlated with employment outcomes for youth with disabilities (Repetto et al., 2002).</p>
Community Setting	<p data-bbox="532 890 1349 953">Living in a suburban setting was negatively correlated with full-time post-school employment (Baer et al., 2003).</p> <p data-bbox="532 995 1349 1037">Community setting impacted type of jobs (Morgan et al, 2000).</p>
Access to Transportation	<p data-bbox="532 1079 1341 1184">Lack of public transportation was reported as a barrier to supported employment for individuals with DD (Conley, 2007; Moon et al., 2008).</p>
Community Economy	<p data-bbox="532 1226 1333 1331">The employment rates for people without disabilities had a moderate to strong relationship ($r = .671$) with the employment rate for people with disabilities (Butterworth et al., 2008).</p> <p data-bbox="532 1373 1333 1478">The strength of the economy was correlated with the employment rates of individuals with mental retardation (Cunningham & Altman, 1993).</p>

In order to reduce the number of variables measured in this survey, I eliminated two after I determined that the survey respondents would not have reliable information about these variables (community-based instruction while in school and SES). I also renamed the predictor “LRE/Inclusive Education,” to

“School Setting,” to include post-secondary programs. This eliminated the need for “Post-Secondary Programs” as a separate category. Based on the qualitative findings from Moon et al. (2010), I renamed the predictor “paid work experience” to “work experience” with multiple levels (no work experience, unpaid work experience, stipend work experience, and paid work experience). I eliminated another variable, “community setting” from the survey after determining there was not an accurate way to measure this variable given the geographically large and diverse areas in which CRPs were located. Some CRPs served individuals from multiple counties in Maryland. Some of the counties could be described as rural, urban, and suburban.

The remaining 12 variable categories included five control variables (gender, race, SSI status, severity of disability, community economy) and seven constructs (self-determination, self-management, community mobility, level of family support, school setting, work experience, interagency planning). In order to develop survey items to assess each construct, I developed an operational definition for each construct based on the literature (Nardi, 2003). For example, the definition of “Family Support” included three components and corresponding variables: “Lives with Family,” “Family Expressed Preference for Supported Employment,” and “Family Involvement.” The definition of “Interagency Planning” included two components and corresponding variables that were included in this study: “VR Counselor” and “Received funded supports prior to exiting school.”

I then developed questions to measure each of the 15 variables (see Table

2) and developed a draft survey. I used Microsoft Word to format the paper SAQ version of the survey. The draft survey was reviewed by two faculty advisors and revisions were made to clarify the wording in the survey and that the questions appropriately measured the constructs.

Review by expert panel.

After I obtained IRB approval for my study, I sent a copy of the survey and a letter to nine experts in the field of transition and requested their feedback regarding the content and design of the survey (see Appendices B1 and B2). Seven of the experts were researchers in the secondary transition field and two were professionals in the Maryland DD field. All nine experts provided feedback. Based on the expert feedback, I made some minor changes to the terminology and skip patterns to improve the clarity of the questions. Some of the experts suggested that I measure characteristics of the work outcomes that I had not included (e.g., wages, hours worked). After I edited the survey based on the feedback from the experts, I developed the online CASI version of the survey using the online survey development site www.surveymonkey.com.

Pilot survey.

Eight potential respondents were selected through the use of snowball sampling (Vogt, 1999). I contacted ten randomly selected CRP staff members from a DD agency mailing list and asked for the names and contact information for a few CRP staff members who worked with TYDD who exited school in 2008 (FY 2007) and who may be willing to participate. I sent emails to each of the potential respondents (N=8) with login instructions for the CASI survey pilot.

After respondents completed the survey, they answered a few questions about the clarity of the survey questions, ease of the survey layout, ability to locate the information needed to fill out the survey and overall suggestions for improving the instrument. For a summary of the pilot study feedback see Appendix B3. Based on these suggestions, I revised the survey for a final time (see Appendix C1).

Survey

The survey consisted of closed-response items to assess the employment outcomes of a specific TYDD (the subject) and the literature-based predictor variables. Some of the survey items required the respondents to refer to the subject's file or record at the CRP. While the most salient questions were at the beginning of the survey, the items requiring respondents to refer to the subject's records and provide demographic information about the subject and themselves were towards the end of the survey. This was done so if the respondents were unable or unwilling to complete that section, it wouldn't interfere with the rest of the survey (Groves, Singer, & Corning, 2000). The following section describes the contents of the survey sections in the order they appeared in the survey. See Table 2 for survey items that measure each variable.

Table 2.

Predictor Variables and Corresponding Survey Items

Variables	Description	Survey Items
<u>Demographic Variables</u>		
Gender	0= female 1= male	Is the individual male or female?
Race/Ethnicity	0= Other 1= Caucasian, non-Hispanic	Indicate the race/ethnicity of the individual. <i>Categories were collapsed.</i>
Severity of Disability	0= >70 1= 55- 69 2= 40- 54 3= 25- 39 4= <25	Please check the box that corresponds to the range from the full scale IQ score found in the report from the most recent psychological evaluation
SSI Recipient Status	0= SSI recipient 1= Non SSI recipient	Does the individual currently receive a monthly SSI/SSDI check?
<u>Community Variables</u>		
Community Economy	Unemployment rate for county where CRP is located for February 2010	<i>This variable measure was taken from the U.S. Census.</i>

Variables	Description	Survey Items
<u>Family Variables</u>		
Lives with Family	0= No 1= Yes	With whom does the individual live? (parents/guardians, siblings, grandparents, extended family, roommates, paid staff members)
Family Expressed Preference for Supported Employment (Family SE)	0= No 1= Yes	Has the individual's family expressed a preference that... ...the individual work in the community? ...the individual have a paid job? Item was scored as "1" if respondents answered "yes" to both questions.
Family Involvement	Sum score of eight items 0= No 1= Yes	Does/Is the family? (check all that apply) <ul style="list-style-type: none"> • Attend planning meetings? • Actively engaged in planning meetings? • Identify job leads in community? • Make suggestions about job opportunities? • Help with transportation to/from work/interviews? • Help make sure individual is prepared and on time for work/interview? • Return phone calls/emails promptly about the individual? • Initiate contact with concerns/questions or to discuss scheduling issues?

Variables	Description	Survey Items
<u>Individual Skill Variables</u>		
Self-Determination Skills	<p>Average likert scale score across multiple survey items which represents level of support needs from 0-3:</p> <p>0= Unable to perform</p> <p>1= Physical Prompt/Assistance</p> <p>2= Verbal prompt/reminder</p> <p>3= No supports needed</p>	<p>What level of support is needed for the individual to:</p> <ul style="list-style-type: none"> • Ask for help when he/she needs it? • Communicate preferences? • Communicate needs (e.g., toileting, feeding)? • Make choices from several alternatives? • Set goals for him/herself? • Actively participate in planning meetings? • Communicate his/her disability to others? • Communicate what supports or accommodations help him/her to be successful to others?
Self-Management Skills	<p>Average likert scale score across multiple survey items which represents level of support needs from 0-3:</p> <p>0= Unable to perform</p> <p>1= Physical Prompt/Assistance</p> <p>2= Verbal</p>	<p>What level of support is needed for the individual to:</p> <ul style="list-style-type: none"> • Use the bathroom independently? • Take care of basic hygiene needs? • Communicate with coworkers appropriately? • Interact with strangers appropriately/safely? • Accept feedback from supervisor? • Cope with negative situations appropriately? • Follow rules on job site and in community? • Remain on-task for at least one hour?

Variables	Description	Survey Items
Community Mobility Skills	<p data-bbox="590 347 810 375">prompt/reminder</p> <p data-bbox="590 407 890 435">3= No supports needed</p> <p data-bbox="590 472 898 651">Average likert scale score across multiple survey items which represents level of support needs from 0-3:</p> <p data-bbox="590 683 869 711">0= Unable to perform</p> <p data-bbox="590 743 831 813">1= Physical Prompt/Assistance</p> <p data-bbox="590 846 810 915">2= Verbal prompt/reminder</p> <p data-bbox="590 948 890 976">3= No supports needed</p>	<p data-bbox="993 472 1667 500">What level of support is needed for the individual to:</p> <ul data-bbox="1041 516 1577 618" style="list-style-type: none"> <li data-bbox="1041 516 1499 544">• Enter/exit vehicle independently <li data-bbox="1041 553 1577 581">• Call to schedule paratransit/taxi rides? <li data-bbox="1041 591 1499 618">• Cross roads at crosswalk safely?
<u>School Variables</u>		
School Setting: Post-secondary program	<p data-bbox="590 1084 674 1112">0= No</p> <p data-bbox="590 1122 684 1146">1= Yes</p>	What was the last type of school that the individual attended?
School Setting: Typical High School	<p data-bbox="590 1230 674 1258">0= No</p> <p data-bbox="590 1268 684 1292">1= Yes</p>	What was the last type of school that the individual attended?
Paid Work	0= No	Considering only the jobs that an individual obtained before

Variables	Description	Survey Items
Experience	1= Yes	beginning with your agency please [indicate type of employment (enclave, mobile crew, independent), job location (school or community), paid/unpaid.
Stipend Work	0= No	Considering only the jobs that an individual obtained before beginning with your agency please [indicate type of employment (enclave, mobile crew, independent), job location (school or community), paid/unpaid.
Experience	1= Yes	Considering only the jobs that an individual obtained before beginning with your agency please [indicate type of employment (enclave, mobile crew, independent), job location (school or community), paid/unpaid.
Unpaid Work	0= No	Does the individual have a [VR] Counselor?
Experience	1= Yes	Did the individual begin receiving supports from your agency (with either [VR] or [state DD agency] funding) prior to exiting school?

Employment outcomes.

Respondents were asked to identify the services that the subject(s) were receiving (day habilitation, day vocational or supported employment).

Respondents who indicated that the subject was receiving “supported employment” services were asked to identify features about the jobs that subject held (e.g., the type of job: enclave, mobile crew, individual placement; average hours worked; whether or not the subject received pay).

Individual skills.

The survey contained three skill batteries to measure the respondents’ perception of the subject’s self-management (e.g., use bathroom independently), self-determination skills (e.g., communicate his/her disability to others), and community mobility skills (e.g., crosses roads at crosswalk safely). The skills included in these batteries were based on the *Syracuse Community-Referenced Curriculum Guide for Students with Moderate and Severe Disabilities* (Ford et al., 1989) the *Arc’s Self-Determination Scale* (Wehmeyer, 1995), a survey of CRP staff developed by Moon et al. (2008), and *Getting Around Town: Teaching Community Mobility Skills to Students with Disabilities* (Moon, et al., 2010). To account for the inconsistency in access to public transportation across Maryland, the Community Mobility scale consisted of three items that related to general community mobility, not accessing public transportation (see Table 1).

Family variables.

Three family system-level variables were measured by the survey used in my study: “Expressed preference for supported employment,” “Family

Involvement,” and “Lives with Family.” In surveys of CRP staff, Moon et al. (2010) and Inge et al. (2009) noted that family preferences for facility-based/commensurate wage employment served as a barrier to supported employment outcomes. Respondents were asked to indicate whether or not the subjects’ families expressed a preference for paid, community-based employment. The “Family Involvement” variable consisted of the sum of eight closed response items based on the family behaviors identified in Dixon and Reddacliff’s 2001 qualitative study of families of young adults with intellectual disabilities in supported employment. Results indicated all subjects lived with family members and suggested that this variable was related to positive employment outcomes. Thus, respondents in the current study were asked to identify if the subject lived with family members (as opposed to alone, with friends, or with paid staff).

Although much of the research on the impact of SES on employment outcomes for individuals with disabilities measures SES with annual income, it was suggested by more than one member of the expert panel that respondents for my survey would not be able to provide this information about the families’ income of the subject and thus this variable was not included in the study. However, the measure of community SES (community unemployment rate) was included.

School variables.

The survey included closed-response items which measured school setting, work experience, and activities of interagency collaboration for each subject. To measure the type of school setting, respondents were asked to

categorize the type of school that the subject last attended. The variable included in the regression analysis was whether or not the subject participated in post-secondary education, and included subjects who participated in the age-appropriate post-secondary programs or attended two or four year universities. Respondents were asked to provide information about the subject's work experience while in secondary school (e.g., approximate dates of employment, location, paid/unpaid). These work experiences were coded with four levels (no work experience, unpaid work experience, stipend work experience, and paid work experience). Although respondents were asked about various planning activities, the included measures for interagency collaboration are (a) whether or not the subject had Vocational Rehabilitation (VR) counselor and (b) whether or not he/she received funded supports from the CRP prior to exiting school.

Demographic variables.

Respondents included information on subjects' race/ethnicity, gender, severity of disability, and SSI status through closed-response items. The race/ethnicity categories were based on the U.S. Census Bureau's 2010 categories. Severity of disability was measured by the most recent full-scale IQ score on file for the individual.

Demographic information on respondents.

The respondents' gender, age, job title, and level of education were assessed using closed-response items. Additionally, the respondents were asked to identify the length of time they had known the subject and their frequency of interactions with the subject. These data were used for descriptive purposes. As

explained in the respondent consent form, responses were not linked to specific respondents or their respective CRPs.

Validity of the instrument.

The strength of the validity of my survey rests on efforts to increase content validity content validity. Content validity is based on the extent to which a measurement measures an intended construct (Carmines & Zeller, 1991). For some of the concepts/constructs (e.g., race/ethnicity, self-management, self-determination, community mobility, family involvement), survey items were based on existing instruments including the U.S. Census, Syracuse Community-Referenced Curriculum Guide for Students with Moderate and Severe Disabilities (Ford, et al., 1989), the Arc's Self-Determination Scale (Wehmeyer, 1995), and a survey developed by Moon et al., 2010. The expert review of the instrument further strengthened the content validity for the survey items because the experts in the field were able to provide feedback about whether the survey items measured the intended constructs. The external validity of this study was strengthened by using the entire population of TYDD in Maryland for one year, and included subjects from a geographically and demographically diverse state.

Reliability of the instrument. The reliability of the instrument was strengthened by calculating inter-item reliability for questions that measure the same construct. The complex constructs of self-determination, self-management, community mobility, and level of family support were measured by multiple items. For each of these constructs, the inter-item reliability was calculated by computing the Cronbach's alpha (α) score for items within the construct. The

Cronbach's alpha (α) for each of the individual skills and the scale of family involvement in the survey were above the generally accepted rate of .70 (Carmines & Zeller, 1991): "Self-determination" (.914), "Self-management" (.933), "Community mobility" (.758), "Family Involvement" (.786), indicating a high degree of inter-item reliability. The Cronbach's Alpha for the nine items in the rating scale that measure the construct "self-management" was initially .926. After deleting item, "Take medication, if needed," (21% of respondents checked indicated "N/A") alpha increased to .933.

Procedures

The survey was administered from January- March 2010, approximately 18 months after the subjects began receiving DD agency funded services from a CRP in 2008. First, the Statewide Coordinator for Transition and Employment Services at the state DD agency (The Coordinator) identified the subjects and their respective agencies. After the subjects were identified, the DD agency staff assigned an identification code (last four digits of their social security number) to each subject to ensure their confidentiality. Initially, we started with the individuals who began receiving TYI funding in Fiscal Year 2008 but after examining the database of 4 digit IDs and their respective CRPs, this resulted in fewer individuals than we expected (N=388). The Coordinator determined that some of the TYDD who qualified for the TYI funding had actually been funded under different categories because of budget constraints. Those individuals ($n=572$) and their respective agencies were identified for this study. These 572

TYDD received funding supports and services from 81 of the 89 CRPs across Maryland.

I then worked with DD agency staff to collate packages to send to each of the CRPs supporting one or more of the identified subjects. Each package contained a cover letter (cosigned by myself and the Director of the Maryland DD agency) to the Executive Director of the CRP (see Appendix D1) and packets for respondents. The cover letter to Executive Directors (a) explained the purpose of the study, (b) explained the process for participation, and (c) requested that the Executive Director distribute the respondent packets to staff member(s) who worked with the identified subject(s). Because CRPs varied in size, organizational structure, and service delivery models, the staff member(s) who completed the survey had different titles and/or job responsibilities (e.g., Job Coach, Case Manager, Employment Specialist) across agencies. The CRP staff members who worked directly with one or more of the 572 subjects were identified as the respondent and asked to complete the survey by the executive director. The letter also explained that the respondents and the CRP Directors who completed the surveys were entered into a raffle for a drawing for an American Express gift card.

Each respondent packet included a letter that listed the subject by name and by coded identification number and explained the process for participation (including the option to participate in the CASI or SAQ survey) (See Appendix D2). The respondent packages also included a consent form, the SAQ, a raffle entry form, a self-addressed, stamped envelope, and an optional subject consent

form (See Appendices D3, D4 and D5). The respondent consent form indicated that responses would be kept confidential and that responses would not be linked to individual respondents or their respective CRPs. I did not collect the optional subject consent forms but rather included them as a template for providers to use if their policies required them to gain consent from subjects. Completed SAQ surveys were returned to the state DD agency office and tracked by ID number by the Coordinator.

One week later, I sent a reminder postcard to all CRP Executive Directors encouraging their participation (See Appendix D6). The following week, the Director of Maryland's DD agency sent the CRP Executive Directors an email that restated the importance of this study and confirmed the State's support for the study. In order to generate support and address any concerns from participants, I made phone calls and sent emails to Executive Directors and other professional contacts at the CRPs to encourage participation. I also made presentations about my study to CRP staff members during two quarterly regional DD provider meetings that occurred in the state.

For the subjects that did not have completed surveys on file by the initial due date, the DD agency staff mailed out a second package containing a letter alerting the CRP Directors which subjects' surveys were not yet completed and a letter to potential respondents (see Appendices E1 and E2). Twelve surveys were returned because the TYDD was no longer receiving state DD agency funded services (10), the TYDD had passed away (1), or the TYDD had moved (1). The final starting sample included the remaining 560 potential subjects receiving

services from 81 different CRPs across the state of Maryland. These 560 TYDD received funding supports and services from 81 of the 89 CRPs across Maryland.

Data Analysis

Data Management

The CASI surveys were completed on a secure website developed on www.surveymonkey.com (n= 82). Data from the completed SAQ surveys (n= 256) were manually entered into the CASI tool. A trained graduate student conducted a reliability check on 100% of the SAQ surveys. The student marked any discrepancies and I reviewed all discrepancies and corrected the errors. The survey data from the Survey Monkey site was exported to an Excel spreadsheet. The data were then coded and entered into a PASW Statistics 18.0 database using the subject's identification number. A trained graduate student conducted a reliability check on 100% of the coded data by comparing the raw and coded data. Just as with the data entry process, the graduate student marked any discrepancies and I reviewed all discrepancies and made corrections to the final database.

Data Coding

Dependent variable.

For the purpose of this study, the supported employment outcome for each subject was coded based on the proposed definitions for Maryland's DD agency regulations (C. Gauruder, personal communication, May 1, 2010). Individual supported employment positions in which the employer paid at least minimum wage, referred to as ISE, was coded as "2." Other supported employment outcomes (including enclaves, mobile crews, and/or sub-minimum wage),

referred to as OSW were coded as “1.” All other employment outcomes (including unpaid integrated employment and facility-based work/non-work activities) were coded as a “0” and used as the reference group in the multinomial logistic regression analysis (see Table 3). Subjects who were participating in more than one work experience were coded with the higher level. For example, a subject who had an ISE position (“2”) and an OSW (“1”) positions were coded with “2.” A trained graduate student conducted a reliability check on 100% of the subjects. Any discrepancies were reviewed by the graduate student and myself and recoded.

Table 3

Employment Outcome Variables Used in Study

Possible Outcomes	Definition	Code	Example Scenarios
Individual Supported Employment (ISE)	Subject works in a community-based job with typical peers and is paid at least minimum wage by employer.	2	<p>Brian* works in a retail position 20 hours weekly. He is paid minimum wage by the store and relies on natural supports.</p> <p>Shante* works in a food service position for 10 hours weekly. She is paid more than minimum wage by the restaurant and has a job coach that provides weekly support.</p>
Other Supported Work (OSW)	Subject works in paid community-based job alongside other peers with disabilities (enclave or crew) and/or makes less than minimum wage.	1	<p>Andre* works in a janitorial crew that travels to various government buildings. He makes minimum wage and works 30 hours weekly and has a full-time job coach.</p> <p>Tina* works in an enclave at a store that her CRP has a contract with for five hours per week. She receives a paycheck from her CRP for less than minimum wage.</p>
Unpaid/Sheltered/ Non-Work (USNW)	Subject participates in unpaid community-based or facility-based work/non-work activities.	0	<p>Latoya* works at her CRP building collating mailings for a company that contracts with her CRP. She gets paid \$.10 for every completed package and works 15 hours per week.</p> <p>Enoch* participates in recreation activities for 30 hours weekly. Some of the activities are at the CRP building and others are in the community.</p>

Note. These are pseudonyms.

Independent variables.

I coded the survey data so that both the categorical predictors (Race/Ethnicity, Gender, SSI recipient status, Income, Lives with Family, Family Expressed Preference for SE, School Setting, Work Experience, VR Counselor, Funding Prior to Exit) and the continuous predictors (Self-Determination, Self-Management, Community Mobility, Family Involvement and Unemployment rate) had numerical values. In order to examine the relative importance of the various levels of these variables, I created dummy codes for these variables. When independent variables with more than two categories are used in a regression analysis, it is customary to leave out one group, which becomes the reference group (Pedhazur, 1982). “Self-Contained School/Residential” and “No Work Experience” were used as the reference groups for “School Setting” and “Work Experiences,” respectively (see Table 2).

PASW automatically considers the lowest value of a variable as the reference group for continuous (covariate) independent variables, the individual skills within the self-determination and self-management rating scales were rated from 0-3 with “0” being “Unable to perform” and 3 being “No supports needed” to perform independently. The community mobility scale was a summative score from 0-3. The family involvement scale was a summative score from 0-6. In contrast, PASW considers the highest value of the variable as the reference group for categorical independent variables in multinomial logistic regression. I entered all dichotomous predictor variables as covariates so that the direction of the predictor variables was consistent (e.g., “1” was the predicted value).

I eliminated “severity of disability” from the multinomial logistic regression analysis due to the low response rate (43.2%) for the survey items used to assess IQ). I considered using a proxy measure for severity of disability. Two survey items were designed to measure disability code, on the individual’s Individualized Education Plan (IEP) while in school and on their state DD agency service plan, respectively. Many of the SAQ respondents indicated more than one disability code was found on the subject’s IEP. Since students in special education are determined eligible for services based on their primary disability and can thus have only one eligibility code, these data were determined invalid. Responses to the open-ended response item used to measure the individuals’ disability code on their state DD agency service plan yielded many responses with names of specific disorders and disabilities, rather than indicators of the severity of disability. Based on these limitations, I eliminated “severity of disability” from the analysis. Despite eliminating this variable, the inclusion of multiple skill ratings (e.g., self-management, self-determination, and community mobility) provided me with measures of ability. These individual skill variables serve as appropriate proxies for severity of disability because the latest definition of intellectual disabilities (which is closely aligned with the definition for developmental disabilities) emphasizes level of needed supports (Schalock, Borthwick-Duffy, Buntinx, Coulter, & Craig, 2010) and these variables were scored in terms of level of supports needed to perform the tasks within each domain.

Missing data.

Some survey items allowed respondents to select “Don’t Know” as their response. These responses were not coded, resulting in missing data points. Of the 14 remaining variable categories, five had missing data for some of the cases. Of the 338 cases in the final sample, 72 would have been thrown out if I excluded cases with missing data, which would have reduced the sample size by 21.3%. Elimination of these cases from the analysis would have resulted in loss of power because of the reduced sample size. The three variables included in the logistic regression model that had a high percentage of missing data (>5%) were responses of “Don’t Know” to SSI, VR Counselor and Funding Prior to Exit (see Table 4). These variables could not be assumed to be Missing Completely at Random (MCAR). MCAR is a term that means that the event that caused the missing data are completely independent from the independent variable. It was not clear whether or not there was a relationship between the lack of knowledge about an item and other predictor variables.

Table 4
Predictor Variables Descriptive Statistics

Variables	<i>n</i>	Mean	SD
Outcome	338	0.57	0.73
Gender	338	0.61	0.49
Race	338	0.49	0.50
SSI	281	0.10	0.31
Mobility	338	1.88	0.94
Self-determination	338	2.07	0.78
Self-management	338	2.25	0.75
Lives with Family	335	0.85	0.36
Family Expressed Preference for SE	338	0.49	0.50
Family Involvement	338	3.77	2.26
School Setting	318	0.71	0.65
Work-Based Experience	338	0.72	1.05
DORS Counselor	273	0.74	0.44
Funding Prior to Exit	281	0.28	0.45
Community Unemployment Rate	338	8.99	2.35

Rather than exclude cases with missing data points, I eliminated variables with more than 5% missing data points from the logistic regression analysis (Grace-Martin, 2010). For the remaining variables with missing data points

(Lives with Family and School Setting), I used mean substitution. Mean substitution is a commonly used strategy in the social sciences (Acock, 2005). Although this approach has been criticized as reducing the variance and resulting in an overestimation or underestimation in significance, it is sufficient for replacing missing values with small percentages of missing data (Grace-Martin, 2010).

Research Question 1

I used univariate descriptive statistics to answer the first research question: “What are the employment outcomes for transitioning youth with developmental disabilities one year after exiting school?” I calculated the frequency of the various employment outcomes for the subjects and analyzed the outcome data by demographics.

Research Question 2 and 3

I used Multinomial Logistic Regression analyses to answer the second and third research questions: “How are demographic, individual skill, family, school, and community variables related to employment outcomes for TYDD?” and “Do individual skills, family variables, and secondary school experiences account for additional variance after controlling for demographic and community variables?” The primary purpose of the logistic regression was to examine the relationship between the predictor variables and the outcome variables after taking the control variables into account (Hosmer & Lemeshow, 1989). A secondary purpose was to select variables that resulted in a model that provides the best understanding of

the multivariate determinants of supported employment outcomes for TYDD with the fewest variables (Doren & Benz, 1998; Hosmer & Lemeshow, 1989).

Logistic Regression is based on the concept of odds and odds ratios, which are based on proportions. If P is defined as the proportion of a positive case, the odds can be determined as a function of P and (1-P): Odds of Positive Case =

$\frac{P}{(1 - P)}$. Because odds are not symmetric, logistic regression considers the

natural log of values, which are symmetrical around zero. The natural log is

defined as $\text{logit}(P) = \ln(\text{odds}) = \ln\left(\frac{P}{1 - P}\right)$. Results are typically reported in

terms of the odds ratio, defined as the antilog of the change in logit: $e^x = e^{\Delta \text{logit}}$.

The odds ratio is a way of comparing whether the probability of a certain event is

the same for two groups. Odds-ratios greater than 1 indicate that the predictor

increases the odds of the outcome whereas an odds-ratio of less than 1 indicates

that the predictor decreases the odds of the outcome. For example, if the odds

ratio for a predictor is 4.0, then it is four times more likely that the outcome

variable will occur when the variable is present, after taking all other variables in

the model into consideration. If the odds ratio for a predictor is .25, then it is four

times less likely that the outcome variable will occur when the variable is present,

after taking all other variables in the model into consideration. We can define the

regression predicting the logit(P) as: $\text{logit}(P) = b_0 + b_1X$.

Rationale for multinomial logistic regression.

Logistic Regression is frequently used to analyze relationships between a categorical dependent variable (e.g., employment status) and categorical and

continuous independent variables in social and behavioral research (Pedhazur, 1997). Although, Discriminant Analysis and Hierarchical Linear Modeling (HLM) are also appropriate analyses to use with categorical outcome variables, Logistic Regression was the most appropriate fit for this study. With a categorical dependent variable, discriminant function analysis is most appropriate if all of the predictors are continuous. This was not the case with the present study.

Additionally, Logistic Regression requires fewer assumptions than Discriminant Analysis (normality, linearity, and homogeneity of variance for the independent variables) and is more robust when those assumptions are not met (Kleinbaum & Klein, 2002). The independent variables in this study consisted of categorical (dichotomous and polytomous) and continuous variables and thus, Logistic Regression was the most appropriate type of regression analysis for this study (Pedhazur, 1997). HLM is appropriate for analyzing nested data when sufficient data are available at various levels and would be useful in analyzing the individual level and CRP level data. However, in this study, there were limited data available for the CRPs. Although the database contained the names of the CRPs, subject outcomes were not linked to the CRPs. In addition, some of the CRPs had a very small number of TYDD therefore HLM was not an appropriate model for this study.

The dependent variable in this study was polytomous [2= Individual Supported Employment (ISE); 1= Other Supported Employment (OSW); 0= Unpaid/Sheltered/Non-Work activities] so I could not use a bivariate logistic regression model to analyze this data. Instead, I used multinomial logistic

regression, which is appropriate to use when the outcome variable has three or more nominal categories (Kleinbaum & Klein, 2002). The multinomial logistic regression model will calculate the log-odds of both categories of supported employment (ISE and OSW) relative to the baseline category (USNW). For logistic regression, Hosmer and Lemeshow (2000) recommend a 10:1 minimum ratio of independent variables to subjects (1989). The present study had 10 independent variables (race; community economy; lives with family; family expressed preference for supported employment; self-determination, self-management, and community mobility skills; post-secondary program participation; typical high school attendance; and paid work experience) in the testing model and five (race; family expressed preference for supported employment; self-management and community mobility skills; and paid work experience) in the final model. Using Hosmer and Lemeshow's guidelines, this study had a sufficient number of subjects (n=338).

Assessing multicollinearity.

Prior to building a model, I assessed the multicollinearity, which could have distorted standard error values. The collinearity statistics (see Appendix O1) indicate no tolerance value less than 0.20 and no Variance Inflation Factor (VIF) greater than 10 for the empirically derived variables or within the final model, which indicates the inter-relatedness among the predictors is not statistically significant (O'Brien, 2007).

Model fitting.

My model fitting strategy was based on the logistic regression model fitting strategy proposed by Hosmer and Lemeshow (1989) and used by Doren and Benz (1998). This included: (a) screening variables by examining bivariate relationships between the predictor variables and the outcome variable; (b) testing variables that had statistically significant chi-square values in the screening model; (c) evaluating the importance of each variable in the secondary model as measured by the significance of the chi-square value and refitting the model to develop a final reduced model.

Screening. First, I conducted a series of logistic regression analyses to determine the overall relationship of each predictor with the outcome in order to establish which variables were related to employment outcomes specifically for TYDD. Secondly, I conducted a logistic regression analysis of the four control variables (gender, race/ethnicity, SSI status, and community economy). This model had an R squared value of .09. This means that the four control variables explained 9% of the total variance of the outcome variable. I then ran regression analyses for each of the predictor variables by including one variable at a time while controlling for the four control variables. I then determined the change in R squared, which is the amount of variance of the outcome variable explained by the predictor after controlling for the control variables. This was calculated by subtracting the R squared value for the control variables (.09) from each model with one additional predictor. This helped me to identify malleable variables that could explain the variance in the dependent.

Testing. I examined the Chi-Square values in the PASW output Likelihood Ratio tables to determine which of the variables had a significant unique effect and should be included in the multivariate analysis. Variables with a p -value $<.10$ were included to prevent the deletion of important variables at the model building stage (Hosmer & Lemeshow, 1989). Although Hosmer and Lemeshow advocate using significance levels as high as .25 in logistic regression model building, I wanted to minimize the Type II error rate so I used .10 for a more conservative level. I also deleted variables that had more than 5% missing data (Grace-Martin, 2010). This resulted in ten independent variables for the testing model.

Evaluating. I examined the Chi-Square values in the PASW output to determine which of the variables were important and would be included in the final reduced model. Since the goal was to develop an overall model for predicting supported employment outcomes with significant variables, at this stage, I deleted four variables that did not have statistically significant chi-squared values for the overall model ($p<.10$) and refit the model. Although the model fitting strategy proposed by Hosmer and Lemeshow, allows for repeating the process of deleting, evaluating, and refitting the model multiple times, the remaining five variables were included in the final reduced model.

Analyzing the final reduced model.

I analyzed both the overall fit of model and the importance of the salient variables on each type of supported employment (ISE and OSW).

Overall fit. I used three indicators from the PASW output to assess the overall fit of the model: (a) the Nagelkerke Pseudo R-Square, (b) the Chi-Square significance statistic from the Likelihood Ratio Test, and (c) the Hosmer-Lemeshow Goodness of Fit statistic. The Classification table, which is often used to explain the percentage of cases correctly classified by a logistic regression model was not analyzed because classification is sensitive to the relative sizes of the outcome groups and should be used only when classification is the goal of the analysis (Hosmer & Lemeshow, 1989).

Importance of individual variables. I analyzed both the statistical and practical significance of the variables for each type of supported employment.

Statistical significance. Multinomial Logistic Regression Parameter Estimates output yields two indicators of statistical significance: the significance of the Wald Test Statistics of the regression coefficients and odds ratios. PASW labels the odds ratio "Exp(B)" and provides "Low" and "High" confidence (95%) levels for it, which are constructed to detect the significance of the odds-ratios. In the case of an odds ratio, for the result to be statistically significant, the 95% confidence interval should not include the value of "1."

Practical significance. Modeling the work of NSTTAC (2010), I converted the odds ratios from my final model into an effect size by conducting a tetrachoric transformation with the equation $(OR^{3/4}-1)/(OR^{3/4}+1)$. For example, I transformed the odds ratio of 4.53 for Paid Work (ISE vs. USNW) to an effect size of 0.51 (See Table 12). Following Cohen's appraisal system (Cohen, Cohen,

West, Aiken, 2003) values for effect sizes were: (a) small: $.10 \leq r < .30$; (b) medium: $.30 \leq r < .50$; and (c) large: $r \geq .50$.

Chapter 4: Results

The purposes of this study were to: (a) examine the employment outcomes for TYDD who received funding from a state DD agency in one Mid-Atlantic state one year after exiting school; (b) identify the relationship of demographic (e.g., race), individual skill (e.g., self-determination), family (e.g., family involvement), school (e.g., school setting), and community (e.g., access to public transportation) variables to these outcomes; and (c) determine if individual skill, family, and secondary school experiences accounted for additional variance after controlling for demographic and community variables. In this chapter, I describe the sample and summarize the results of the study. Then, I present the descriptive statistic analysis to answer Research Question 1. Finally, I answer Research Questions 2 and 3 by explaining the findings from my three step multinomial logistic regression model building strategy.

Study Sample

For the purposes of this study, the subjects were 338 TYDD who began receiving DD agency funded supports from a CRP in Maryland in 2008. The respondents were the CRP staff members who worked with the subjects and completed the surveys.

Respondents

The respondents provided demographic data about themselves on each survey. Due to the confidential and anonymous nature of the survey, it is not possible to determine the total number of respondents. An individual respondent may have completed the survey about more than one subject. The respondents had different

job titles, including Case Manager (90), Program Director (47), Employment Specialist (49), Job Coach (36), Program Coordinator (19), and Community & Employment Associate (9).

Subjects

The initial sample included 560 subjects (TYDD) from 81 CRPs across the state. Surveys were completed on 338 subjects (60.4%) from 57 CRPs (70.4%). Of the 338 subjects, 206 were male (60.9%) and 132 were female (39.1%). Respondents described the race/ethnicity of the subjects as 48.8% Caucasian/White, 44.4% Black/African American, 1% were identified as both Black/African American and Caucasian/White, 2.7% Asian, 2.7% Spanish/Latino origin, .3% American/Alaskan Native, .3% Native Hawaiian/Other Pacific Islander, and .3% American Indian and Caucasian/White. For the purpose of this study, the subjects were coded as either Caucasian/White/Non-Hispanic (49.4%) or other (50.6%). A majority of the subjects received SSI benefits (74.5%). All subjects were identified as having a developmental disability as they were receiving long-term supports from one of 59 CRPs from across the state of Maryland (see Figure 1).

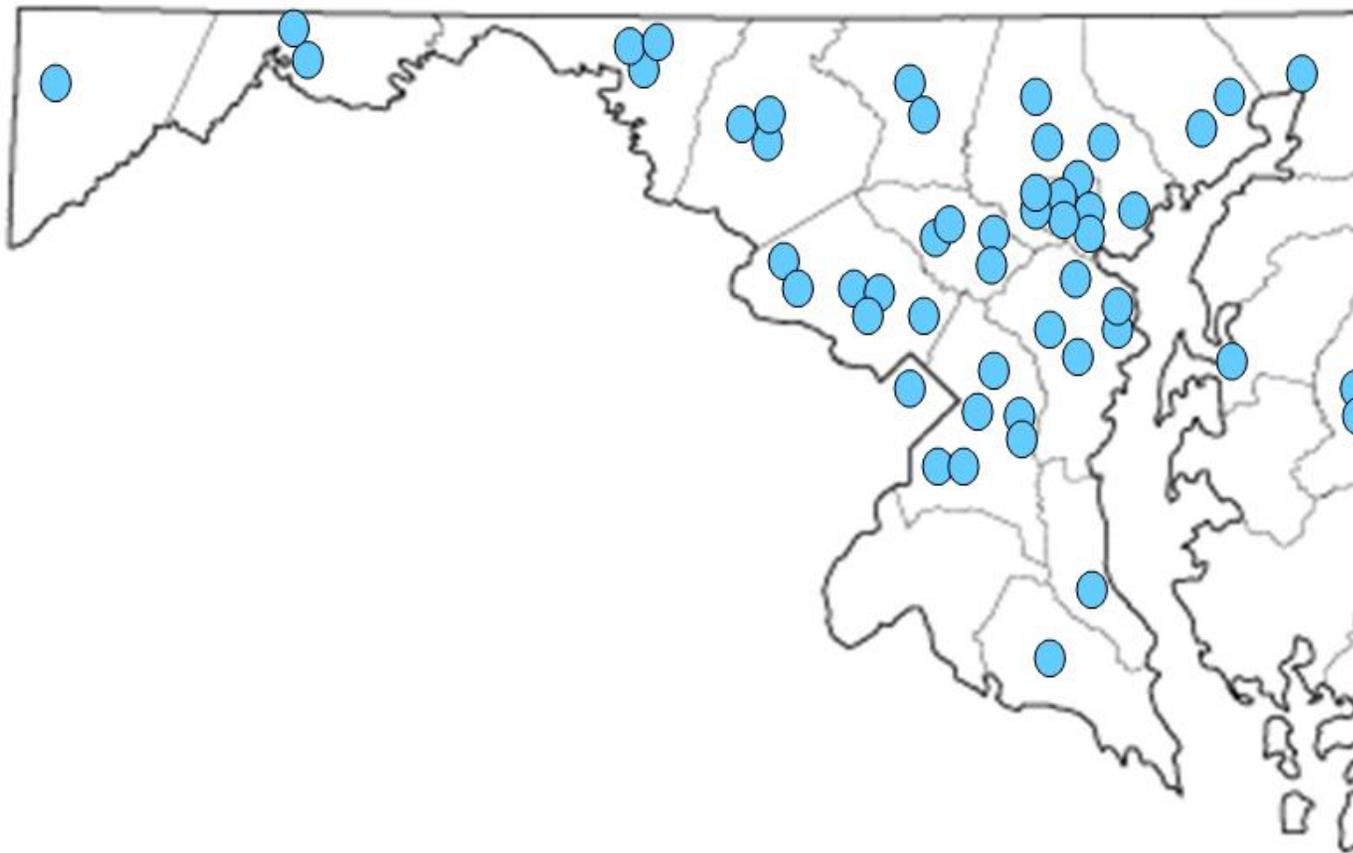


Figure 1. Geographic location of 59 CRPs that supported subjects in this study.

Research Question 1

Descriptive statistics were used to answer Research Question 1: “What are the employment outcomes for TYDD who receive supports from a CRP one year after exiting school?” Of the 338 subjects, 193 (57.1%) participated in either unpaid/sheltered/non-work activities. The other 145 (42.8%) were in supported employment. Of the 145 in supported employment, approximately two thirds (66.9%) worked in group models, such as enclaves and mobile crews, and/or worked for less than minimum wage. Only 14.2% were in individual paid supported employment positions. See Table 5 for the outcomes by gender, race/ethnicity, and SSI status.

Table 5

Outcome by Demographic and School Variables

	USNW		OSW		ISE		Total
	N	%	N	%	N	%	
Gender							
Male	112	54.4	61	29.6	33	16.0	206
Female	81	62.4	36	27.3	15	11.4	132
Race/ethnicity							
Caucasian (non-				21.6		15.0	
Hispanic)	106	63.5	36		25		167
Other	87	50.9	61	35.7	23	13.5	171
SSI							
SSI Recipient	147	58.3	73	29.0	32	12.7	252
Non-Recipient	8	27.6	10	34.5	11	38.0	29
VR Counselor							
No	123	60.6	55	27.1	25	12.3	203
Yes	30	43.0	23	32.9	17	24.3	70
Funded Supports Prior to Exiting School							
No	111	55.0	60	29.7	31	15.3	202
Yes	43	54.4	25	39.0	11	13.9	79
School Setting							
Self-				21.6		11.0	
Contained/Residential	86	67.7	27		14		127
Typical High School	78	49.7	59	37.8	20	12.7	157
Post-Secondary Program	16	47.1	7	20.6	11	32.4	34
Work Experience During School							
None	129	64.2	53	26.4	19	9.5	201
Unpaid	42	56.8	23	31.1	9	12.2	74
Stipend	11	58.0	5	26.3	3	15.8	19
Paid	11	25.0	16	36.4	17	38.6	44

Note. USNW= Unpaid/Sheltered/Non-Work; OSW= Other Supported Work; ISE= Individual Supported Employment.

Research Questions 2 and 3

A three step Multinomial Logistic Regression model building strategy was used to answer the second and third research questions: “How are demographic, individual skill, family, school, and community variables related to employment outcomes for TYDD?” and “Do individual skills, family variables, and secondary school experiences account for additional variance after controlling for

demographic and community variables?” I screened empirically derived predictor variables, tested significant variables in a logistic regression model, evaluated and refitted the model.

Model Building

Screening.

During the screening stage, I conducted a series of bivariate regression analyses to determine the overall relationship of each predictor with the supported employment outcomes on their own (see Table 6).

Table 6

Screening for Bivariate Relationships

	χ^{2*}	R ²	χ^{2*}	ΔR^{2*}
Demographic & Community Control Variables				
Gender	2.10, $p=.350$	.01	n/a	n/a
Race ^{bc}	8.43, $p=.015$	.03	n/a	n/a
SSI ^{bc}	13.88, $p=.001$	.05	n/a	n/a
Community Economy ^{bc}	7.05, $p=.001$	.02	n/a	n/a
All Controlling Variables	35.53 (8), $p=.000$	.09 ^a	n/a	n/a
Other Predictor Variables				
Family Involvement	4.48, $p=.106$	.02	1.90, $p=.387$	.01
Lives with Family ^{bc}	9.86, $p=.007$	.03	5.15, $p=.076$	.02
Family SE ^{bc}	60.58, $p=.000$	.19	51.23, $p=.000$	.16
Self-Management Skills ^{bc}	60.17, $p=.000$	.19	52.25, $p=.000$	.16
Self-Determination Skills ^{bc}	41.24, $p=.000$	.14	36.323, $p=.000$	.11
Community Mobility Skills ^{bc}	66.09, $p=.000$	.21	53.07, $p=.000$	.16
School Setting				
Post-Secondary Program ^{bc}	8.53, $p=.014$	.03	5.75, $p=.057$	.01
Typical High School ^b	10.64, $p=.005$	.04	9.04, $p=.011$	.03
Work Experiences				
Paid Work Experience ^{bc}	27.77, $p=.000$	.09	21.28, $p=.000$	.07
Stipend Work Experience	.08, $p=.962$	.00	.08, $p=.963$	.00
Unpaid Work Experience	.47, $p=.789$	.00	1.05, $p=.593$	.01

VR Counselor ^b	8.34, $p=.015$	.03	8.12, $p=.017$	.03
Funding Prior to Exit	.16, $p=.924$	.00	.45, $p=.798$	.00

Note. Change in Nagelkerke Pseudo R^2 is an approximation of the increase in predictability of a predictor over the predictors being controlled for. It is an analogous, but not identical to, the change in R^2 estimate from OLS Regression. For all models, the Cox & Snell R^2 value for the control variables as a set is .08. With the exception of the set of control variables, all tests based on χ^2 with 2 df. ^a R^2 value for set of four control variables (Gender, Race, SSI, Community Economy).

^bSignificant variables ($p<.10$)

^cVariables entered into the logistic regression testing model.

Demographic and community control variables. Gender was not a significant predictor of an outcome of supported employment for the 338 subjects. The other three control variables: race/ethnicity ($p=.015$), SSI status ($p=.001$), and community economy ($p=.001$) were found to be significant predictors of supported employment when entered into the regression model alone. Together, the four control variables ($p<.001$) had an R squared value of .09, which means that 9% of the variance in the outcomes can be explained by these variables (see Table 6).

Other predictor variables. The chi-square values of nine other predictor variables were statistically significant when regressed on the outcome variable on their own: Lives with Family ($p=.007$); Family Expressed Preference for SE ($p<.001$); Self-Management Skills ($p<.001$); Self-Determination Skills ($p<.001$); Community Mobility Skills ($p<.001$); Post-Secondary Program ($p=.014$); Typical High School ($p=.005$); Paid Work Experience ($p<.001$); and VR Counselor ($p=.015$). Four variables did not have a statistically significant chi-square value in

the bivariate analysis stage: Family Involvement, Stipend Work Experience, Unpaid Work Experience, and Funding Prior to Exit.

In order to control for the demographic and community variables, I entered each predictor into a regression along with the four control variables (race, gender, SSI, and community economy) and examined the chi-squared value for the entered predictor variable. In order to determine the amount of variance explained by the predictor variables after controlling for the demographic and community variables, I subtracted the Pseudo R squared value of the control variables (.09) from each of the resulting R squared values (see Table 6).

After controlling for the demographic and community variables, the same nine predictor variables were found to be significant ($p < .10$) unique predictors of the outcome variables: Lives with Family ($p = .076$), Family Expressed Preference for Supported Employment ($p < .001$), Self-Management ($p < .001$), Self-Determination ($p < .001$), Community Mobility ($p < .001$), Post-Secondary Program ($p = .057$), Typical High School ($p = .011$), Paid Work Experience ($p < .001$), and VR Counselor ($p = .017$). Three variables were each found to account for 16% of the variance in the outcomes after controlling for the control variables (change in R squared value): Family Expressed Preference for Supported Employment, Self-Management, and Community Mobility. Self-Determination accounted for 11% of the variance and Paid Work Experience accounted for 7% of the variance after controlling for the control variables. Four variables were not significant predictors of the outcome variable once the control variables were entered:

Family Involvement, Stipend Work Experience, Unpaid Work Experience and Funding Prior to Exit (see Table 6).

Testing.

Next, I ran a logistic regression model with the ten variables that met the following criteria: Significant ($p < .10$), when tested against the control variables, with less than 5% missing data points (see Table 7).

Table 7

Testing Model

	Chi-Square	Sig.
Race	4.79	.091
Community Economy	1.59	.451
Lives with Family	.76	.684
Family Expressed Preference for Supported Employment	20.81	<.001
Self-Determination Skills	1.09	.581
Self-Management Skills	6.34	.042
Community Mobility Skills	6.12	.047
School Setting: Postsecondary Program	.83	.660
School Setting: Typical High School	3.13	.209
Work Experience: Paid Work	9.33	.009

Note. Nagelkerke Pseudo R square .37. Variables in bold font met the established criteria $p < .10$ and were entered into the reduced model.

Evaluating and refitting.

In the testing model, five variables were statistically significant ($p < .10$): Race ($p = .072$), Family Support for SE ($p < .001$), Self-Management ($p = .050$), Community Mobility ($p = .070$), and Paid Work Experience ($p = .010$). I repeated

the process of deleting and refitting and ran the reduced model with these five variables (see Table 8). These five variables were all statistically significant ($p < .10$) and thus were included in the final model.

Table 8

Likelihood Ratio Tests for Final Reduced Model

	Chi-Square	Sig.
Race	6.26	.044
Family SE	24.03	.000
Self-Management Skills	6.16	.046
Community Mobility Skills	6.03	.049
Work Experience: Paid Work	9.68	.008

Note. Nagelkerke Pseudo R square- .35

Analysis of Final Reduced Model

Overall fit.

I used two indicators from the PASW output to assess the overall fit of the model: (a) the Nagelkerke Pseudo R-Square and (b) the Likelihood Ratio Test Chi-Square statistic (see Table 7).

Nagelkerke Pseudo R-Square. To assess the overall strength of the association of the model, I examined the value of the Nagelkerke R^2 for the final reduced model. The Nagelkerke R^2 is considered a better indication than the commonly used Cox and Snell R^2 (Pampel, 2000). The value of .35 means that 35% of the variance in the outcomes for this study is explained by the five variables in the final model.

Likelihood Ratio Test. I examined the Chi-Square statistic in the Likelihood-Ratio Test PASW output, which reports the ratio of the maximized value of the likelihood function for the final model over the maximized value of the likelihood function for the null model. This value was significant ($p < .001$), which indicated that the final model was a significant improvement over the null model.

Importance of individual variables.

In order to analyze the relationship of the predictor variables in the final reduced model on each level of the outcome variable, I examined the significance of the Wald Test statistic and the odds ratios from the Parameter Estimates Table in the PASW output for each of the two supported employment outcomes: Individual Paid Employment and Other Supported Work (see Table 9). PASW labels the odds ratio "Exp(B)" and provides "Low" and "High" confidence (95%) levels for it, which is constructed to detect the significance of the odds-ratios. In the case of an odds ratio, for the result to be statistically significant, the 95% confidence interval should not include the value of "1." Next, I used tetrachoric transformation to convert the odds ratios into effect sizes as a measure of practical significance: $r = (OR^{3/4} - 1) / (OR^{3/4} + 1)$. See Table 9 for the findings.

Table 8

Statistical and Practical Significance of Final Model

Predictor	<i>b</i>	S.E. of <i>b</i>	Sig	Odds Ratio	95% CI for Odds Ratio		Effect Size (Cohen Level)
					Lower Bound	Upper Bound	
<i>Individual Supported Employment</i>							
Race	-.22	.38	.557	0.80	0.38	1.68	
Mobility ^a	.66	.30	.028	1.95	1.07	3.53	.25 (small)
Self- Management	.60	.44	.171	1.82	0.77	4.32	
Family SE ^a	1.87	.47	.000	6.48	2.60	16.15	.60 (large)
Paid work ^a	1.51	.496	.002	4.53	1.72	11.98	.51 (large)
<i>Other Supported Employment</i>							
Race	-.70	.29	.015	0.50	0.28	0.87	-.18 (small)
Mobility ^a	.33	.20	.1022	1.39	0.94	2.06	.13 (small)
Self- Management	.62	.27	.024	1.85	1.08	3.17	
Family SE ^a	1.00	.29	.001	2.71	1.53	4.81	.32 (med.)
Paid work ^a	.76	.46	.098	2.15	0.87	5.30	.27 (small)

Note. Comparisons are to reference group “0.” Effect sizes based on Cohen’s appraisal system, listed if $>.10$. See Table 1 for definitions in “Predictor” column.

^a Predictor variables are significant ($p < .10$).

^b Odds ratio confidence interval includes the value of 1.0.

Individual supported employment. Three variables were found to have a statistically significant effect on predicting whether a subject was in Individual

Supported Employment (as compared to the unpaid/sheltered/non-work): Community Mobility ($p=.028$), Family Expressed Preference for SE ($p<.001$), and Paid Work Experience ($p=.002$). The odds ratio of 1.95 for Community Mobility means that for every additional point on the Community Mobility scale, subjects were 1.95 times more likely to be in ISE. The odds ratio of 6.48 for Family Expressed Interest for SE means that for subjects whose families' expressed an interest in paid, community work were 6.48 times more likely to be in ISE. The odds ratio of 4.53 for Paid Work Experience means that subjects with paid work experience were 4.53 times more likely to be in ISE. The two most salient variables in predicting whether a subject was in ISE were having a family who expressed a preference for supported employment and having paid work experience, both of which had large effect sizes (see Table 8).

Other supported work. Three variables were found to have a significant unique effect on predicting whether a subject was in Other Supported Work (rather than the reference group): Race ($p=.015$), Self-Management ($p=.024$), and Family Expressed for SE ($p=.001$). Race was found to have a significant negative effect on predicting the outcome. The odds ratio of .50 means that Caucasian/Non-Hispanic subjects were two times less likely to be in Other Supported Work rather than Unpaid/sheltered/non-work activities. The odds ratio of 1.85 for Self-Management means that subjects with one point increase on the Self-Management scale were 1.85 times more likely to be in OSW. The odds ratio of 2.71 for Family Expressed Preference for SE indicated that subjects whose families expressed a preference for community, paid work were 2.71 more

likely to be in OSW. Although Paid Work had a p -value of .098, the confidence interval of the odds ratio included the value “1,” which implied no significantly significant change. Similarly, the odds ratio confidence interval for Mobility includes the value of “1” ($p=.102$). In terms of practical significance, four variables had an effect size $> .10$. Family expressed preference for SE had a medium effect size and race/ethnicity, scores on the community mobility scale, and paid work experience had small effect sizes (see Table 8).

Summary

Of the 338 subjects in this study, less than 15% were in the highest level of supported employment: individual paid supported work. Another 28.7% of the subjects were in other supported employment positions, which included work for sub-minimum wage and group work (enclaves and mobile crews). The majority were in engaged in unpaid/sheltered work or non-work activities.

Nine predictor variables had a significant relationship with outcome after controlling for demographic and community variables. The model fitting strategy to develop a parsimonious model for predicting both levels of supported employment, yielded a reduced final model with five variables that each had a significant unique effect on predicting supported employment outcomes for TYDD: race/ethnicity, self-management, community mobility, family preference for supported employment, and paid work experience. The two most salient variables were family expressed preference for supported employment and paid work experience which each had medium or large effect sizes on predicting

whether an individual ends up in either Individual Supported Employment or Other Supported Work as opposed to unpaid/sheltered/non-work.

Chapter 5: Discussion

The purposes of this study were to: (a) examine the levels of work activity, including supported employment, for TYDD who received funding from a state DD agency in one Mid-Atlantic state one year after exiting school; (b) identify the relationship of demographic (e.g., race), individual skill (e.g., self-determination), family (e.g., family involvement), school (e.g., school setting), and community (e.g., access to public transportation) variables to these outcomes; and (c) determine if individual skill, family, and secondary school experiences accounted for additional variance in supported employment outcomes after controlling for demographic and community variables. This was accomplished by developing and administering surveys about specific TYDD to CRP staff and analyzing the findings with descriptive statistics and multinomial logistic regression. This first section in this chapter: Major Findings and Contributions describe the major findings along with the contributions of these findings to field for (a) employment outcomes for TYDD and (b) predictors of supported employment outcomes for TYDD in the final logistic regression model. Implications for educators, individuals with DD, and their families are also noted. The second section: Study Design: Limitations and Relevance for Future Research, identifies the limitations of the study as well as features of the design that will be useful in conducting future research on employment outcomes for individuals with DD. Finally, implications for research and policy are highlighted in the final section: Implications for Research and Policy.

Major Findings and Contributions

Employment Outcomes for TYDD

Despite the continued emphasis in policy and funding directives for integrated employment for individuals with developmental disabilities (AFP, 2010; ICI, 2010), only 145 (39.9%) of the 338 subjects were engaged in paid work in the community one year after exiting school. This finding is particularly disappointing given that the subjects were part of a state initiative, which had been in place for more than twenty years and was designed to promote a seamless transition between the school systems and the vocational rehabilitation and the state DD agencies. The most important part of this initiative was to link students directly with the developmental disabilities agency as they exited the school system at age 21 to funding from the DD agency in an effort to avoid the waiting list for services and to link transitioning youth with a CRP. Over half of the subjects (57.1%) transitioned from school to facility-based/non-work/volunteer activities. This means that 193 out of 338 subjects were not in integrated or supported employment placements during the year they transitioned from public schools to a CRP. This finding suggest that many TYDD do not exit school with the skills and experiences necessary to successfully transition to supported employment.

These findings are similar to Butterworth et al. (2008) who reported that 38% of individuals with DD in Maryland participated in integrated work. However, this is one of the first studies to distinguish between individual paid supported employment (ISE) and other types of paid work in the community

(OSW). Only 14.2% of the 338 subjects were employed in individual positions and paid at least minimum wage by an employer (ISE). The rest of the subjects engaged in supported employment worked in enclaves or mobile crews and/or received sub-minimum wage for this type of work (OSW). While these models of group employment may fit some definition of supported employment (e.g., paid work in the community), they are not aligned with the federal and state policy to move towards integrated, authentic work for individuals with DD (AFP, 2010). It is also possible that they do not align with expectations of transitioning youth with DD or their families. While limited, there is research to support that some families envision their son or daughter with an intellectual disability (which can include DD) attending a postsecondary institution or working in an integrated community setting (Grigal & Neubert, 2004; Grigal, Neubert, Moon & Graham, 2003). There is also some evidence that transitioning youth with DD have the same vision (Neubert & Redd, 2008; Redd, 2004). For example, one transitioning youth involved part-time in a community enclave as part of a program on postsecondary campus stated: “Because after I graduate, I sure hope that the [CRP transition coordinator] finds me another job because when he kicks me out of [mobile crew] I’ll be happy” (Neubert & Redd, p. 227).

Beyond accurately depicting the employment outcomes of transitioning youth with DD, this was the first correlational study to examine predictors of supported employment for this population. This study examined the relationship between a number of empirically derived predictor variables (e.g., race, SSI, self-determination, paid work experience, community economy) and supported

employment outcomes. This was also the first correlational study to include the variables identified in the literature (Cunningham & Altman, 1993; Moon et al., in press) that may be uniquely relevant to TYDD (e.g., stipend work experience, self-management skills, typical high school setting, post-secondary program participation, funded CRP supports prior to exiting school, family preference for supported employment).

Final Model: Predictors of Supported Employment Outcomes for TYDD

Although a number of empirically derived variables were found to have a bivariate relationship with supported employment outcomes, the final logistic regression model consisted of five variables that were the most salient predictors of supported employment outcomes for the TYDD in this study: (a) family expressed preference for SE; (b) paid work experience; (c) self-management skills; (d) community mobility skills; and (e) non-Caucasian race.

Family expressed preference for supported employment.

This was one of the first quantitative studies to describe the relationship between specific family characteristics and employment outcomes for transitioning youth. My findings build on the results of two exploratory studies that highlighted this relationship (Dixon & Reddacliff, 2001; Moon et al., in press). The most important family level predictor variable, family's expressed preference for supported employment, was identified by Moon et al. (in press) as critical to supported employment. Subjects whose families expressed a preference for paid, community work were 6.48 times more likely to be in ISE ($p < .001$, $ES = .60$) and 2.71 times more likely to be in OSW ($p = .001$, $ES = .36$).

Although CRP staff articulated the need for individuals, rather than families, to advocate for themselves in a study about CRP staff perceptions (Moon et al., in press), this finding suggests that families have a high degree of influence on the types of employment outcomes for TYDD. Educators, with the assistance of adult service providers, must work to empower students with DD and their families to understand the scope of employment services available at CRPs (Moon et al., in press) and to work towards integrated employment with pay during the final secondary years for those transitioning youth and families who express this work preference.

Paid work experience.

The importance of secondary work-based experiences (e.g., job shadowing, volunteer work, internships, paid work) on positive employment outcomes for former special education students has been well documented (Dunn & Shumaker, 1997; Benz et al., 2002; Rabren et al., 2002; Fabian, 2007; Wagner et al., 1991; Dunn & Shumaker, 1997; Doren & Benz, 1998). However, my study is one of the first to examine the relationship of various models of work-based experiences that are typical for students with DD, such as unpaid enclaves and stipend paid work.

My findings support the results of a small survey of CRP in Maryland that highlighted CRP staff did not value unpaid work (e.g., enclaves, job shadowing) and/or work paid with stipend funds from the school when considering supported employment placements for youth transitioning from school to adult services (Moon et al., in press). One participant in Moon et al.'s survey (in press) stated

that families “think that the client is more than he/she is” because of stipend work experience. The importance of authentic paid work experiences and skills that are related to post-school employment outcomes for transitioning youth and their families have been documented (Neubert & Redd, 2004; Grigal et al., 2003) and my study extends these findings. Neither unpaid work experiences nor stipend paid work experiences were found to have a statistically significant relationship with supported employment outcomes. The only type of work experience that had a relationship with supported employment outcomes for my sample was paid work in the community. Subjects who had paid work experience were 4.53 times more likely to be in ISE ($p=.002$, $ES=.51$) and 2.15 times more likely to be in OSE ($p=.098$, $ES=.28$).

Students with DD and their families should be aware of this distinction and advocate for authentic paid work experiences during secondary school years. While unpaid work may be appropriate as an exploratory experience to collect age-appropriate transition assessment data during some of the secondary years, the final years of public school should focus on paid work in integrated settings for transitioning youth who desire supported employment as a measurable post school outcome. Educators and policy makers should reexamine the benefits and limitations of unpaid and stipend work programs for TYDD, especially when students are 18 to 21 years old. To ensure students meet their post school goals of integrated or supported employment, individual and paid employment should be the culmination of various work experiences. Without doing so, schools may find

it hard to demonstrate TYDD are meeting their post schools when doing follow-up on student outcomes one year after school to comply with Indicator 14.

Self-management skills and community mobility skills.

In my study, two of the three variables identified in a recent survey of CRP staff by Moon et al. (in press) as critical for supported employment: self-management skills ($p=.046$) and community mobility skills ($p=.049$) were found to have a significant unique effect on predicting supported employment outcomes in the final logistic regression model. Although previous research has identified community mobility and self-management as important transition skills, this is the first study to demonstrate the relationship of community mobility and self-management skills to specific employment outcomes for TYDD. These findings have clear implications for the field, especially for secondary teachers and transition specialists; it is essential to emphasize instruction that develops self-management and community mobility skills for transitioning youth.

In an era of increased academic focus in instruction, this finding should be useful to secondary teachers and transition specialists as they advocate for instruction and IEP goals that target self-management and community mobility skills for transitioning youth with DD. This will be especially true for students with DD and their families that desire integrated or supported employment as a post-school outcome. It will be important for teachers and transition specialists to work with students during the early secondary years on these specific skills, so they can be practice with more independence in the community as they approach their final years in the school system. Teachers will need to find creative ways to

incorporate self-management and community mobility skills with the focus on access to general education and academic standards (Brown et al., 2006; Moon et al., in press). For example, students' community mobility skills instruction, such as safely crossing the street, could occur before and after school during the travel to and from home. Coordinated activities in the IEP should relate to students' measurable post-school outcomes, therefore, teachers and families should assess students' age-appropriate self-management and community mobility skills on a yearly basis related to students' post-school goals. During the final years of public school, these skills should receive increased attention in terms of instruction and practice and then documented in students' Summary of Performance.

Race.

Other studies have identified Caucasian/non-minority race/ as positively related to employment outcomes for individuals with disabilities (Moore et al., 2002; Heal & Rusch, 1995). However, Caucasian/Non-Hispanic race/ethnicity had a significant negative relationship with supported employment outcomes in this study. Specifically, Caucasian/Non-Hispanic TYDD were 1.25 times less likely to be in individual supported employment and two times less likely be in engaged in other supported work. The difference in these findings may be related to the differences in my study sample as compared to other studies that identified race as a predictor of employment outcomes. In my study, 50.6% of the subjects were identified as non-Caucasian as compared only 33% in Moore et al. (2002) and 35.4% in Heal and Rusch (1995).

Other Important Findings

In the following section, I discuss the noteworthy findings from the screening stage of my model building.

Gender. Surprisingly, gender was not found to have a significant bivariate relationship with supported employment outcomes for the TYDD in this study. This may be because, unlike many of the studies that identified a relationship between gender and employment outcomes (Baer et al., 2003; Doren & Benz, 1998; Fabian, 2007; Heal & Rusch, 1995; Olson et al., 2003; and Rabren et al., 2003), the dependent variable in my study did not include a minimum number of hours worked per week. Future studies should continue to use these two categories of supported employment outcomes while also measuring data about the number of hours worked and wage earned.

School setting. Integrated education has been identified as an important predictor of employment outcomes (White & Weiner, 2004; Grigal, 2007) and this study extended these findings. Being in a typical high school or in a post-secondary program on a college or community campus (rather than a self-contained, residential or non-public school setting) significantly increased the likelihood that a subject would be in supported employment. However, neither of these settings was found to be a significant unique predictor in the final reduced logistic regression model, indicating that once other variables were accounted for, school setting was not a salient predictor. This finding is more consistent with Redd (2004), who found that few graduates who had participated in a program located in a postsecondary setting before exiting public school, obtained

individual supported employment placements. In contrast, Grigal et al. (2007) found that more than 80% of graduates of exemplar post-secondary programs had paid employment at time of exit. These conflicting findings suggest that the school setting may not be the salient variable, rather the school experiences and individual skills that are gained during the final secondary school years that may have the greatest impact on employment outcomes. More research is needed to further examine the impact of school setting and specific school experiences on supported employment outcomes for students with developmental disabilities.

Interagency collaboration. The need for informal and formal interagency agreements for youth with disabilities as they exit school and transition to adult environments has been a focal point of transition models, federal and state initiatives, and best practices identified in the literature since the 1990s (Wehman & Moon, 1988; Kohler, 1998). This is one of the first studies to specifically measure the relationship of specific interagency collaborative practices on employment outcomes. Despite the fact that the Transitioning Youth Initiative was designed to provide participants linkages to the VR agency prior to their final years in school (including summer employment programs and VR funded supports), only 20.7% of respondents indicated that the TYDD had a VR Counselor and only 23.4% received funding prior to exiting school. It was interesting to note that respondents indicated “don’t know” for more than 15% for each variable. This finding suggests that the respondents who were supposed to be working directly with the TYDD were either did not understand the question or did not know about the interagency linkages.

Although having a VR Counselor was found to be a significant predictor of supported employment outcomes for TYDD, this variable was not entered into the regression model because of the high percentage of missing data. Future studies should explore CRP staff knowledge about the individuals with whom they work including their secondary school experiences and interagency linkages. In addition, replication studies should consider collecting data from multiple sources (e.g., CRP administration, VR records, individuals, families, schools) to try to decrease the rate of missing data for these variables.

Study Design: Limitations and Relevance for Future Research

In this section, I describe the limitations of my study and offer suggestions for future research on employment outcomes for individuals with DD based on my study design.

CRP Survey

Most follow-up studies on youth with disabilities have relied on former students or family members to self-report on employment outcomes. Problems have been acknowledged with this approach including the respondents' lack of knowledge of various employment options (e.g.; supported employment for pay, sub-minimum work in a sheltered setting), lack of documentation about specific secondary school experiences, and a desire to impress the interviewer with how well things have gone since leaving school. My study circumvented these issues by capturing the perspective of CRP staff members who work closely with individuals with DD (Conley, 2007; Moon et al., in press). While Olson et al. (2000) measured predictors and outcomes for specific individuals by surveying

CRP staff members, respondents were not asked to provide information about the individuals' secondary school experiences.

One benefit of surveying CRP staff in this study was they worked closely with the TYDD subjects and they had to refer to school and adult service records to report on variables from five system levels (demographic, individual skill, family, school and community) for each subject. This allowed me to examine relevant predictors that reflect the complexities of factors that impact employment outcomes for TYDD.

My high response rate of 60.4% (Punch, 2003) provides information on a diverse group of TYDD across one state. This may be due, in a large part, to my collaboration with the state DD agency that provided long-term, on-going funding to the TYDD that was used to fund employment services at the CRPs in Maryland. Respondents may have been more inclined to respond to a survey that was distributed from the state DD agency rather than an individual researcher. The recruitment letters sent with the survey assured respondents that the data could not be linked to them or their CRP in efforts to decrease the impact of social desirability bias (Fowler, 1995). Additionally, the raffle for the incentive prize (\$100 gift card) may have encouraged participation from the respondents (Fowler, 1995).

Framework

I modified Luft and Rubin's (1995) framework to examine variables found in transition research. Luft and Rubin's framework was based on Bronfenbrenner's ecological interaction model, which acknowledges that an

individual is influenced by the interactions among various systems (Brofenbrenner, 1979; Rusch & Phelps, 1987) and organizes relevant variables into categories (demographic, individual skill, family, school, community). Future research should consider adding another category: CRP agency level variables. This could include staff qualifications and turnover, size of CRP, and organizational structure.

If sufficient CRP level data are measured in future studies, researchers may want to consider using Hierarchical Linear Modeling (HLM), rather than regression analyses. HLM is appropriate for analyzing nested data when sufficient data are available at various levels and would be useful in analyzing the CRP level data. This method would allow researchers to account for the fact that individuals with DD are nested within various CRPs and decrease the likelihood of (inaccurately) rejecting the null hypothesis (Osborne, 2000).

Analysis

Since this was one of the first studies to use multinomial logistic regression to identify the relative impact of specific variables on determining level of supported employment for TYDD, the findings are meaningful for individuals, families, and professionals who want to understand the variables that are related to ISE or OSW. The odds ratios and effect sizes are two important ways to interpret the importance of each variable in the model at each level of the model.

Limitations

Sample.

Despite the important findings of this study, limitations exist. The study sample was limited to one state which had a unique transitioning youth initiative designed to promote a seamless transition to post-school outcomes, including supported employment. However, the sample (N= 338) was large and from a geographically and ethnically diverse state. In addition, the service delivery system is typical of other states. In every state, individuals who receive long-term funding from the DD agency must have a documented disability (onset before the age 21) to be considered eligible for services and funding. Those determined eligible for long-term funding from DD agencies use this money in some manner to purchase supports from a community agency for employment services.

Outcome Data

My study did not include a reliability check for employment outcomes reported by CRP staff on the survey. This was not possible as the data were not linked to the names of the TYDD. Although respondents knew that this survey was supported by the state DD agency, attempts were made to reduce the impact of “social desirability” bias by assuring respondents that the data would be anonymous and confidential. In addition, rather than asking respondents to categorize employment outcomes, I asked them about features of the job (e.g., setting, level of supervision, etc.) and then I coded the responses.

Predictor Variables

This study did not capture all information about secondary school experiences and instruction, only the information that was available to the respondent. It is likely that not all schools sent complete records to the adult agencies. For example, although my survey was sent out five years after IDEA 2004 mandated that any existing student from special education have a Summary of Performance (SOP) document to highlight secondary experiences, accommodations, post-school goals, and recommendations for adult environments, only 7.7% of the subjects had this document in their file. While the respondents did document the subjects' participation in various secondary school experiences and settings, the study did not capture qualitative information about the variables. For example, subjects who participated in a program on a college or community campus for transitioning youth ages 18 to 21 years old, were likely to have different experiences from a student who remained in a school building until age 21. Future studies should therefore utilize mixed methods to examine the qualitative features of secondary school experiences and analyze the impact of these variables on outcomes for TYDD.

Due to the high percentage of missing data for three variables on my surveys (SSI, VR Counselor, Funding Prior to Exit, Severity of Disability), I was unable to include these variables in my analysis. Future researchers should consider how to collect data from multiple sources to obtain this information or to encourage respondents to refer to various sources for information for these important variables (e.g., subjects, subjects' families, supervisors). CRP level variables

were not included in this exploratory study. Rather, I focused on control variables and variables that were malleable to intervention by secondary schools (specific skills, school experiences, and family involvement).

Implications for Research and Policy

While this study was limited to one state, it could be replicable in other states to examine employment outcomes for TYDD or with all individuals with DD receiving services from CRPs. School systems might even consider collecting these data cooperatively with the DD agency. This would satisfy the schools need to document outcomes one year after school as mandated by Indicator 14 in IDEA 2004 and help DD agencies establish baseline data on employment outcomes for individuals as begin to receive long-term funding. This baseline data would provide an estimate of the work that was needed to make integrated employment for all individuals with disabilities a reality. Without such data, it will be difficult for agencies and families to plan for future employment initiatives.

Implications for Research

The effective method (CRP survey) and appropriate statistical analysis (multinomial logistic regression) used in this study also provide a model for replication. As the field endeavors to increase the rate of integrated employment, it is essential that the types of employment outcomes are categorized consistently in research and policy. I attempted to capture the scope of outcomes for individuals with DD receiving long term funding from CRPs. Individual Supported Employment (ISE) is closely aligned with the notion of “real work for real pay” that has emerged in policy and advocacy (AFP, 2010). Other Supported

Work (OSW) captures the types of employment outcomes that currently meet the definition for supported employment in legislation and policy (Developmental Disabilities Act, 1984; Rehabilitation Act Amendments, 1998; Workforce Investment Act of 1998). Maryland used these two categories to report employment outcome data for the Alliance for Full Participation (Developmental Disabilities Administration Transitioning Youth Workgroup meeting; February 11, 2010). A significant limitation of these categories is that they do not capture hours worked weekly or weekly wage. Future studies should continue to use these two categories of supported employment outcomes while also measuring data about the number of hours worked and wage earned. This may be particularly important for examining the impact of gender on employment outcomes since research has shown that gender has been related to the number of hours worked and weekly wage (Doren & Benz, 1998).

In terms of the predictor variables, this study provides a strong foundation for replication. Future studies should continue to include variables from all five system levels, especially the new variables used in my study (e.g., stipend work experience, family preference) and the variables that were dropped because of missing data, (e.g., SSI, VR Counselor, and funding prior to exit), especially receiving SSI and having a VR Counselor, which were found to have significant bivariate relationships with the dependent variable. Future studies should try to reduce the amount of missing data and collect information on CRP level data, including qualifications of direct service personnel (Butterworth et al., 2009).

This study has documented the relationship of various secondary school experiences and individual skills that are related to supported employment outcomes for TYDD. We do not yet understand how the school settings, instruction, and work experiences impact skill acquisition and supported employment outcomes. There is a need in the field for mixed method research which can capture the qualitative characteristics of the school settings, type of instruction and work experience and analyze how these factors are related to skill acquisition and outcomes for a large sample of TYDD.

Although this study helps us to understand what predicts supported employment outcomes for TYDD, it does not examine the significance of empirically derived variables for predicting whether an individual is in ISE or OSW. Researchers should expand my study by examining the specific variables that may predict whether an individual is in ISE or OSW.

Implications for Policy Makers

Education.

By distinguishing between ISE and OSW, this study makes an important contribution to our understanding of the supported employment outcomes for TYDD. As school systems endeavor to collect valid information about post-school outcomes in compliance with Indicator 14, it is important that they distinguish between the types of supported employment that transitioning youth are engaged. In addition, this study demonstrates the value in collaborating with adult agencies who support transitioning youth after they exit school (e.g., CRPs and DD agency) in order to capture post-school data. Interagency collaboration

was the cornerstone of the Transitioning Youth Initiative in Maryland. My findings indicate that this may not be happening for most TYDD and suggest that this initiative should be evaluated in a systematic manner periodically. This is especially important since having a VR counselor was related to supported employment outcomes in my study.

Other predictors of supported employment that are malleable for intervention should be emphasized in program development. An important distinction made by this study was that paid work had a significant unique effect on supported employment outcomes. Unpaid and stipend paid work did not. Subjects who were coded as having a paid work experience may have also had unpaid or stipend paid experiences, thus these types of programs may provide valuable experiences designed to build work related skills and assess career interests. The finding suggests, however, that students with DD should engage in at least one paid work experience prior to exiting school. In an era of heightened accountability, educational policy makers need to understand that these skills and experiences are important predictors of post-school employment. At some point, schools must incorporate services and programs that emphasize these predictors, rather than only academic skills (Brown et al., 2006; Moon et al., in press).

Developmental disability.

My findings have implications for DD policy makers as well. As states are required to increase the rates of integrated employment for individuals with DD, it is essential that meaningful outcome data be collected. This study can be replicated as the categories of supported employment (ISE and OSW) can be used

to characterize the employment outcomes of all individuals with DD receiving long-term DD agency funded supports from CRPs. In addition, it is important for DD policy makers to understand the types of skills that are important predictors for supported employment for all individuals with DD so that they can develop programs designed to enhance these skills.

Summary

Despite the legislation that funds special education programs and substantial long-term supports for adults with DD, many transitioning youth and adults with DD have not fully benefited from the paradigm shift towards integrated employment. Even fewer have been able to obtain individual supported employment, which is most closely aligned with recent policy and advocacy efforts and the theory of normalization. It has been more than 40 years since Nirje articulated the premise of normalization for individuals with [intellectual disabilities]. We have a long way to go to ensure that all individuals with DD, including transitioning youth, experience integrated employment. This study is but one step in that direction.

APPENDIX A1

Definitions of Employment Outcomes for Individuals with DD found in Legislation and Literature

Source	Term	Integrated setting	Includes enclaves & crews	Paid	At least minimum Wage	Paid by employer	Minimum Hrs./Week
Developmental Disabilities Act of 1984 (P.L. 98-527)	Supported Employment	X	X	X			
The 1998 reauthorization of the Rehabilitation Act (P.L. 105-220)		X	X				
The 1998 reauthorization of the Rehabilitation Act (P.L. 105-220); Doren & Benz (1998)	Competitive Employment	X	X	X	X	X	20 ^a
Butterworth et al., 2008	Integrated Employment	X	X	X			
Heal & Rusch (1995)	Non-sheltered Employment	X	X	--- ^b	--- ^b	--- ^b	--- ^b

Note.^a Doren & Benz included a 20 hour minimum for the definition of competitive employment.

^bThese characteristics are not clarified in the definition used by Heal & Rusch (1995).

APPENDIX A2

Summary of Research Related by Study

Reference	Participants <i>Method</i>	Dependent Variable(s) ^a	Independent Variable(s) ^a	Findings	Effect Size for Significant Variable(s) ^b
Baer et al. (2003)	N=140 students, all disability categories (except speech) <i>Binary Logistic Regression</i>	Full-time employment	Disability Category <i>Suburban District</i> <i>Work Study</i> <i>Vocational Ed.</i> <i>Female gender</i> <i>Minority status</i> Regular academics	Learning Disability: Exp(β)=.3.67** <i>Suburban District</i> : Exp(β)=.30** <i>Work Stud</i> : Exp(β)= 2.60* <i>Vocational Education</i> Exp(β)=2.66*	0.45 (medium) -0.42 (medium) 0.34 (medium) 0.35 (medium)
Benz et al. (2000)	N=917 students with a variety of disabilities	Productive Engagement (Post-secondary employment or education)	<i>Number of Paid Jobs</i> <i>Transition Goals Met</i> <i>At-risk Status</i> <i>Disability</i> <i>Rural Setting</i> <i>Lack of Transportation</i> Social Skills History of Absenteeism	Number of Paid Jobs: Exp(β)=1.80*** Transition Goals Met: Exp(β)=3.82***	0.22 (small) 0.46 (medium)

Reference	Participants <i>Method</i>	Dependent Variable(s) ^a	Independent Variable(s) ^a	Findings	Effect Size for Significant Variable(s) ^b
Benz et al. (1997)	N= 327 students, all disability categories <i>Binary Logistic Regression</i>	Productive Engagement (Post-secondary employment or education)	<i>Female gender</i> <i>Disability category</i> <i>Social Skills</i> <i>Number of paid jobs</i> <i>Job Search Skills</i> <i>Vocational Skills</i> <i>Lack of transportation</i> <i>Rural community</i> History of absenteeism Criminal record Substance abuse No. of transition goals met <i>Ethnic minority</i>	Disability Status by Gender: Exp(β)=.20** Social Skills: Exp(β)=3.44* Number of Paid Jobs: Exp(β)=2.03** Job Search Skills: Exp(β)=2.11* Vocational Skills: Exp(β)=2.73**	-0.54 (large) 0.43 (medium) 0.26 (small) 0.27 (small) 0.36 (medium)
Conley (2007)	N= 24 staff of CRPs in Maryland <i>Interview</i>			Respondents identified community access to public transportation, current funding processes, and staff to turnover as barriers to employment.	
Cunningham & Altman (1993)	N= 3007 residents of residential facilities with MR <i>Multivariate Logistic</i>	Paid employment	<i>Severity of intellectual disability</i> <i>SSI status</i> <i>Male gender</i> <i>County Unemployment rate</i> Age <i>Race</i> <i>Daily living skills</i>	Severity of intellectual disability, SSI status, male gender, and county unemployment rate were significant predictors of paid employment.	

Reference	Participants <i>Method</i>	Dependent Variable(s) ^a	Independent Variable(s) ^a	Findings	Effect Size for Significant Variable(s) ^b
	<i>Regression</i>		Problem behaviors Residential facility type U.S. Census region		
Dixon & Reddacliff (2006)	N= 15 adults with intellectual disabilities (ages 18- 30) who are working independen- tly			Five family characteristics were identified as contributing factors to competitive employment outcomes for young adults with intellectual disabilities: moral support, practical assistance, role models of appropriate work ethic, protection from difficulties and exploitation, and family cohesion.	
	<i>Content Analysis of Interviews</i>				
Doren & Benz (1998)	N= 422 students with disabilities (12% MR)	Competitive employment (defined as at least 20 hours/week and earning at least \$4.25/hour)	<i>Gender</i> <i>Family income</i> ≤\$25,000 <i>Number of jobs in school</i> Self Esteem Self-family-friend network <i>Disability</i> Academic skills <i>Vocational skills</i> <i>Social skills</i>	<u>Females</u> Family Income: Exp(β)=.152** No. of Jobs in School: Exp(β)=2.17+ Self-Esteem: Exp(β)=0.32* <u>Males</u> No. of Jobs in School:	-0.61 (large) 0.28 (small) -0.40 (medium)

Reference	Participants <i>Method</i>	Dependent Variable(s) ^a	Independent Variable(s) ^a	Findings	Effect Size for Significant Variable(s) ^b
			Family Income by self-esteem	Exp(β)=2.04** Vocational Skills: Exp(β)=5.33* Self-family-friend Network: Exp(β)=2.33*	0.26 (small) 0.56 (large) 0.31 (medium)
Dunn & Shumaker (1997)	N= 68 students who exited one year prior <i>Chi-square analysis</i>	Full-time employment above minimum wage; Health insurance	<i>Male Gender</i> <i>Disability category</i> <i>Paid employment during school</i> <i>Urban vs. rural setting</i>	Male Gender: $\chi^2= 6.78^{**}$ Learning Disability: $\chi^2= 15.03^{**}$ Paid Employment During School: $\chi^2= 12.50^{**}$	
Fabian (2007)	N=3,929 urban participants of internship program with various disabilities <i>Logistic Regression</i>	Job attainment during internship	<i>Female Gender</i> <i>Vocational experience</i> <i>SSI</i> <i>Ethnicity</i> Disability category Age School setting Community economy Career goal	Female Gender: Exp(β)= 0.75*** Vocational Experience: Exp(β)=1.35** SSI: Exp(β)= .80*	-0.11 (small) 0.11 (small) 0.09 (no effect)

Reference	Participants <i>Method</i>	Dependent Variable(s) ^a	Independent Variable(s) ^a	Findings	Effect Size for Significant Variable(s) ^b
Grigal (2007)	Two post- secondary programs <i>Descriptive statistics</i>	Paid employment at time of exit from school	<i>Post-secondary program participation</i>	Student participants in post- secondary programs yielded high percentage of employment at exit (88% and 92%).	
Heal & Rusch (1995)	N= 2,405 recent high school exiters with disabilities (NLTS dataset) <i>Blockwise regression analysis</i>	Level of employment (sheltered/ none, part- time, full- time)	<i>Gender Race Age Severity of disability Number of siblings Number of disabled siblings in household Parent education Income Self-management skills Academic classes High School diploma High School GPA Suspension School dismissal Mental health therapy Community-Based education Vocational education</i>	$R^2 = 0.08^*$	0.09 (small)

Reference	Participants <i>Method</i>	Dependent Variable(s) ^a	Independent Variable(s) ^a	Findings	Effect Size for Significant Variable(s) ^b
			<i>% hours in regular education County unemployment rate</i>		
Moon et al. (2010)	N= 12 staff members of CRPs <i>Descriptive statistics</i>			Self-Determination, Self-Management, and Community Mobility were identified as critical skills for supported employment outcomes for TYDD by CRP staff members.	
Moore et al. (2002)	N= 188 adults with severe/profound MR <i>Logistic regression</i>	Vocational Rehabilitation (VR) closure status Income	<i>Race Job Placement Services Vocational training On-the job training Transportation Adjustment</i>	<u>Vocational Rehabilitation Closure</u> Race: $r^2=.04***$ Job Placement Services: $r^2=.14^*$	
Morgan, Ellerd, Jensen, & Taylor (2000)	N= 7553 students and adults with disabilities <i>Regression Analysis</i>	Type of employment placement ^c	<i>Urban Setting</i>	Clerical: $F=4.92^*$ Computer: $F=5.03^*$ Stocking: $F= 12.17^*$	0.34 (medium) 0.34 (medium) 0.53 (large)

Reference	Participants <i>Method</i>	Dependent Variable(s) ^a	Independent Variable(s) ^a	Findings	Effect Size for Significant Variable(s) ^b
Olson, Cioffi, Yovanoff, & Mank (2000)	N= 463 adults with disabilities (including MR) <i>Chi-Square Analyses</i>	No. of hours worked/week; Wage; Ratings on “typicalness” of job features	<i>Gender</i>	Female subjects worked fewer hours and earned less/month than male subjects; Differences not statistically significant.	
Rabren, Dunn, Chambers (2002)	N= 1,393 former special education students from 37 school districts in Alabama <i>Hierarchical Logistic regression</i>	Employed status one year out of high school	<i>School setting (rural vs. urban)</i> <i>Gender</i> <i>Disability</i> Job at time of HS exit Helped by Mental Health or MR/DD agency <i>Race</i> Exit status (diploma or certificate) Helped by VR	School Setting: $\text{Exp}(\beta)=0.75^{***}$ Gender: $\text{Exp}(\beta)=0.79^{***}$ Learning Disability: $\text{Exp}(\beta)=1.22^{***}$ Job at Time of HS Exit: 1.23^{***}	-0.11 (small) -0.09 (no effect) 0.07 (no effect) 0.08 (no effect)
Redd (2004)	One PSE program			Only 12/5% of post-secondary graduates were working in	

Reference	Participants <i>Method</i>	Dependent Variable(s) ^a	Independent Variable(s) ^a	Findings	Effect Size for Significant Variable(s) ^b
	with 16 students with significant disabilities <i>Case Study</i>			individual jobs.	
Repetto, Webb, Garvan, & Washing- ton, (2002)	67 School system transition service databases in Florida <i>Descriptive statistics</i>	Percent of high school exiters with disabilities that were employed	<i>VR linkages</i> <i>MH linkages</i> <i>SSI</i> <i>CRP linkages</i> <i>Case management</i> <i>Transportation</i> <i>Employment during school</i> <i>Work training</i>	None of the interagency planning variables were correlated with percent of employed high school exiters with disabilities.	
Wagner (1991)	N= 2,405 recent high school exiters with disabilities (NLTS dataset) <i>Multivariate analysis</i>	Employed for pay one year after high school	Vocational education (prevocational or job- related coursework)	Vocational education and work experience were significant predictors of paid employment- after mediating the effects of other variables, vocational education was shown to have a 9% increase in post-school employment rates.	

Reference	Participants <i>Method</i>	Dependent Variable(s) ^a	Independent Variable(s) ^a	Findings	Effect Size for Significant Variable(s) ^b
Wehmer & Palmer (2003)	N= 94 recent special education exiters; NLTS data <i>Secondary data analysis; Chi-square analysis</i>	Held a job since high school; Holds job currently; Works full- time; Works part-time	<i>Gender</i> <i>Disability</i> <i>Self-determination</i> as measured by a dichotomized variable- high/low scores on The Arc's Self-Determination Scale	Students with a high self- determination score were more likely to have held a job one year after exiting and work either part-time or full time.	
White & Weiner (2004)	N= 104 students with severe disabilities from 12 different schools <i>Multiple case studies; Chi-square</i>	Employment	Severity of disability Gender Ethnicity Community-based training during school day Degree of physical integration in school	Community-based training during school day: $r=0.39^{***}$ Degree of Physical Integration in School: $r= 0.36^{***}$	0.39 (medium) 0.36 (medium)

Reference	Participants <i>Method</i>	Dependent Variable(s) ^a	Independent Variable(s) ^a	Findings	Effect Size for Significant Variable(s) ^b
<i>analysis</i>					

Note. Variables used in the current study are in italics.

^a For quantitative studies. ^b - Relationships converted to standardized effect sizes if enough information is provided by researchers. ^c From the Directory of Occupational Titles)

+p<.10; *p<.05; **p<.01; ***p<.001

APPENDIX B1
LIST OF TRANSITION EXPERTS WHO PROVIDED FEEDBACK ON
SURVEY

Meg Grigal, Ph.D.
Senior Research Associate
TransCen, Inc.
451 Hungerford Drive, Suite 700
Rockville, MD 20850

Debra Hart, Ph.D. (ABD)
Educational Coordinator
Institute for Community Inclusion/UCEDD
UMass Boston
100 Morrissey Blvd.
Boston, Massachusetts 02125

Katharine J. Inge, Ph.D., OTR
Assistant Professor
Virginia Commonwealth University
Rehabilitation Research & Training Center
1314 W. Main St.
PO Box 843011
Richmond, VA 23284-2011

Mary Morningstar, Ph.D.
Associate Professor
Director, Transition Coalition
Department of Special Education
University of Kansas
1122 W. Campus Rd.
Joseph R. Pearson Hall, Room 540
University of Kansas

[David Test](#), Ph.D.
Professor, Graduate Coordinator
Co-Director of the Self-Determination Synthesis Project
Department of [Special of Special Education and Child Development](#)
[College of Education](#)
[University of North Carolina at Charlotte](#)
9201 University City Blvd.
Charlotte NC 28223-0001

Michael Wehmeyer, Ph.D.
Assistant Director
Department of Research and Program Services
The Arc
National Headquarters
500 E. Border, Suite 300
Arlington, TX 76010

Wendy Wood <mailto:dwtest@uncc.edu>, Ph.D.
Assistant Professor
Co-Director of the Self-Determination Synthesis Project
Department of [Special of Special Education and Child Development](#)
[College of Education](#)
[University of North Carolina at Charlotte](#)
9201 University City Blvd.
Charlotte NC 28223-0001

APPENDIX B2
LETTER TO TRANSITION EXPERTS

April 19, 2009

Dear Dr. Test;

My name is Monica Simonsen and I am a doctoral candidate in the Department of Special Education at the University of Maryland. I have been working with both Dr. Sherril Moon and my faculty advisor, Dr. Debra Neubert on research related to the employment outcomes of transitioning youth with developmental disabilities that receive long-term supports from community rehabilitation providers (CRPs). For my dissertation, I am going to explore the predictor variables for these employment outcomes.

Specifically, my proposed study will address the following research questions:

- What are the employment outcomes for TYDD who receive long-term supports from a CRP one year after exiting school?
- How are demographic, individual skill, family, school, and community variables related to integrated supported employment outcomes for transitioning youth with developmental disabilities?

After conducting my literature review, I developed a draft survey to send to the CRP staff members about the transitioning youth they support. I am looking for feedback on the survey and was hoping that, as an expert in the field of transition, you would be willing to review the draft survey.

If you are able to assist me with this project or have any questions, please send your comments to monica.simonsen@gmail.com. Thank you, in advance, for your support of my research!

Sincerely,

Monica Simonsen
Doctoral Candidate
University of Maryland, College Park
monica.simonsen@gmail.com
301-405-6498

APPENDIX B3
Pilot Study Feedback

	Mean	Std. Deviation
The directions were clear.	5.00	0.00
I understood the questions.	4.25	1.50
The terminology was familiar to me.	4.75	0.50
I was prepared to answer the questions.	4.00	0.82
I had to guess or approximate some of my answers.	4.00	0.82
I had to consult another person or the youth's file to answer some of the questions.	4.00	2.00
I think this is a reasonable length for the survey.	5.00	0.00
The study topic is interesting to me.	4.75	0.50

Note. There were four pilot study respondents. Items were rated on Likert Scale: "1" Strongly Disagree, "2" Disagree, "3" Neither Agree or Disagree, "4" Agree, "5" Strongly Agree.

APPENDIX C1 SURVEY

Transitioning Youth Follow-Up Study

Thank you for participating in the Transitioning Youth Follow-Up Study! Please respond to the following questions about the individual identified in the attached letter. This survey should take less than 30 minutes to complete.

To complete the survey online, go to: <http://www.surveymonkey.com/s/TYfollowup>

To complete the survey over the phone, please email mls0915@umd.edu to schedule an appointment.

Remember...

- Some of the questions require you to rate the individual on specific skills. Try to think of the individual on an average day.
- It is helpful to have the individual's file on hand to refer to, to answer some of the questions.
- Don't forget to enter the raffle to win a \$100 American Express gift card after completing the survey!

1. Please enter the individual's four digit identification number that is indicated in the letter with your login procedures.

--	--	--	--

2. It will be helpful to consult the individual's file. Do you have the individual's file available?

- Yes
 No

3. Please describe the individual's status at the time of the survey. Please check each of the activities he/she is participating in.

- Day Habilitation (non-vocational) at the agency
 Day Vocational (i.e. work adjustment training, collating, assembly) at agency facility
 Supported Employment (enclave, mobile crew, independent position)

4. Has the individual set an employment goal for him/herself?

- No
 Yes. If yes, briefly describe the individual's employment goal (Ex. "To work in a pet store."):
-

5. Some individuals participate in multiple employment experiences at once. Considering the individual's **CURRENT employment experiences** (up to three), select the characteristics that best describe each job. It is not necessary to list previous jobs.

Type of Job	Job Industry	Level of Support	How long has the individual held this position?	Average hours worked in this job weekly	Wage Information
JOB #1 <input type="checkbox"/> Enclave <input type="checkbox"/> Mobile Crew <input type="checkbox"/> Independent position	<input type="checkbox"/> Building/grounds maintenance <input type="checkbox"/> Food prep/service <input type="checkbox"/> Office/clerical <input type="checkbox"/> Warehouse/stocking <input type="checkbox"/> Retail/sales <input type="checkbox"/> Education/childcare <input type="checkbox"/> Healthcare support <input type="checkbox"/> Customer Service <input type="checkbox"/> Installation/repair <input type="checkbox"/> Other:	<input type="checkbox"/> Natural supports only <input type="checkbox"/> Full-time job coaching <input type="checkbox"/> Daily monitoring <input type="checkbox"/> Weekly monitoring <input type="checkbox"/> Monthly monitoring	<input type="checkbox"/> < 1 month <input type="checkbox"/> 1-3 months <input type="checkbox"/> 3-6 months <input type="checkbox"/> 6-9 months <input type="checkbox"/> 9-12 months <input type="checkbox"/> 12 + months	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-20 <input type="checkbox"/> 21-30 <input type="checkbox"/> 31-40 <input type="checkbox"/> 40+	<input type="checkbox"/> Unpaid <input type="checkbox"/> Sub-minimum wage by agency <input type="checkbox"/> Sub-minimum wage by employer <input type="checkbox"/> At least minimum wage by agency <input type="checkbox"/> At least minimum wage by employer
JOB #2 <input type="checkbox"/> Enclave <input type="checkbox"/> Mobile Crew <input type="checkbox"/> Independent position	<input type="checkbox"/> Building/grounds maintenance <input type="checkbox"/> Food prep/service <input type="checkbox"/> Office/clerical <input type="checkbox"/> Warehouse/stocking <input type="checkbox"/> Retail/sales <input type="checkbox"/> Education/childcare <input type="checkbox"/> Healthcare support <input type="checkbox"/> Customer Service <input type="checkbox"/> Installation/repair <input type="checkbox"/> Other:	<input type="checkbox"/> Natural supports only <input type="checkbox"/> Full-time job coaching <input type="checkbox"/> Daily monitoring <input type="checkbox"/> Weekly monitoring <input type="checkbox"/> Monthly monitoring	<input type="checkbox"/> < 1 month <input type="checkbox"/> 1-3 months <input type="checkbox"/> 3-6 months <input type="checkbox"/> 6-9 months <input type="checkbox"/> 9-12 months <input type="checkbox"/> 12 + months	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-20 <input type="checkbox"/> 21-30 <input type="checkbox"/> 31-40 <input type="checkbox"/> 40+	<input type="checkbox"/> Unpaid <input type="checkbox"/> Sub-minimum wage by agency <input type="checkbox"/> Sub-minimum wage by employer <input type="checkbox"/> At least minimum wage by agency <input type="checkbox"/> At least minimum wage by employer
JOB #3 <input type="checkbox"/> Enclave <input type="checkbox"/> Mobile Crew <input type="checkbox"/> Independent position	<input type="checkbox"/> Building/grounds maintenance <input type="checkbox"/> Food prep/service <input type="checkbox"/> Office/clerical <input type="checkbox"/> Warehouse/stocking <input type="checkbox"/> Retail/sales <input type="checkbox"/> Education/childcare <input type="checkbox"/> Healthcare support <input type="checkbox"/> Customer Service <input type="checkbox"/> Installation/repair <input type="checkbox"/> Other:	<input type="checkbox"/> Natural supports only <input type="checkbox"/> Full-time job coaching <input type="checkbox"/> Daily monitoring <input type="checkbox"/> Weekly monitoring <input type="checkbox"/> Monthly monitoring	<input type="checkbox"/> < 1 month <input type="checkbox"/> 1-3 months <input type="checkbox"/> 3-6 months <input type="checkbox"/> 6-9 months <input type="checkbox"/> 9-12 months <input type="checkbox"/> 12 + months	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-20 <input type="checkbox"/> 21-30 <input type="checkbox"/> 31-40 <input type="checkbox"/> 40+	<input type="checkbox"/> Unpaid <input type="checkbox"/> Sub-minimum wage by agency <input type="checkbox"/> Sub-minimum wage by employer <input type="checkbox"/> At least minimum wage by agency <input type="checkbox"/> At least minimum wage by employer

Self-Management and Self-Determination

6. What level of support is needed for the individual to perform the following tasks?

Self-Management Skills	No Supports Needed	Verbal Prompt/Reminder	Physical Prompt/Assistance	Unable to Perform	N/A
Take medication independently, if needed					
Use the bathroom independently					
Take care of basic hygiene needs (bathe; use deodorant; wear clean, neat clothing)					
Communicate with coworkers appropriately					
Interact with strangers in an appropriate and safe manner					
Accept feedback from supervisor					
Cope with negative situations appropriately					
Follow rules on job site and in community					
Remain on-task for at least one hour					
Self-Determination Skills	No Supports Needed	Verbal Prompt/Reminder	Physical Prompt/Assistance	Unable to Perform	N/A
Ask for help when he/she needs it					
Communicate preferences (verbally or nonverbally)					
Communicate needs (i.e. toileting, feeding)					
Make choices from several alternatives					
Set goals for him/herself					
Actively participate in planning meetings					
Communicate his/her disability to others					
Communicate what supports/ accommodations help him/her to be successful to others					

Family

7. *With whom does the individual live with? (check all that apply)*

- | | |
|--|---|
| <input type="checkbox"/> Parents/guardians | <input type="checkbox"/> Paid staff members |
| <input type="checkbox"/> Siblings | <input type="checkbox"/> Don't know |
| <input type="checkbox"/> Grandparents | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Extended family | |
| <input type="checkbox"/> Roommates | |

The following questions are about the individual's family/caregivers. If the individual's family is not actively involved, please consider the individual's primary caregiver/advocate when responding to the following questions.

8. *Has the individual's family communicated a preference that the individual work in the community?*

- Yes No

9. *Has the individual's family communicated a preference that the individual work in a paid job?*

- Yes No

10. *Has the individual's family communicated a preference that the individual participate in facility-based services?*

- Yes No

11. *Has the individual's family expressed a concern that paid employment may interfere with government benefits (such as SSI)?*

- Yes No

12. *Which of the following statements are true about the individual's family? (check all that apply)*

- Family attends planning meetings
- Family is actively engaged in planning meetings
- Family has identified job leads in community
- Family makes suggestions about job opportunities
- Family helps with transportation to/from work/interviews
- Family helps make sure individual is prepared and on time for work/interviews
- Family returns phone calls/emails promptly about the individual
- Family initiates contact with concerns/questions or to discuss scheduling issues
- None of the above
- Other: _____

Community Mobility/Access to Transportation

13. *Is there a public bus or metro stop within one mile of the agency office?*

- Yes
- No
- Don't Know

14. *Is there a public bus or metro stop within one mile of the individual's home?*

- Yes
- No
- Don't Know

15. *Paratransit is an alternative mode of flexible passenger transportation that does not follow fixed routes or schedules. Does your community have a paratransit or reduced fare taxi system?*

- Yes
- No
- Don't Know

16. *How would you describe the access to public transportation in the community in which the individual lives?*

- Very Good
- Good
- Poor
- Very Poor

17. *Does the individual have his/her driver's license?*

- Yes
- No
- Don't Know

18. *Does the individual use a wheelchair?*

- Yes
- No

19. What level of support is needed for the individual to perform the following tasks?

Community Mobility Skills	No Supports Needed	Verbal Prompt/Reminder	Physical Prompt/Assistance	Unable to Perform	N/A
Ride on a public bus or metro without making transfers					
Make transfers on a public bus					
Call to schedule a paratransit or taxi rides					
Cross roads at crosswalk safely					
Enter/exit vehicle independently					

Individual Demographics

20. Is the individual:

- Male
 Female

21. Indicate the race/ethnicity of the individual. Please check all that apply:

- White
 Asian
 Black
 Native Hawaiian or Other Pacific Islander
 American Indian or Alaskan Native
 Spanish/Hispanic/Latino origin

22. When the individual was in school, did he/she receive special education services (and have an IEP)?

- No
 Don't Know
 Yes

Students receiving special education services are determined eligible by one of 13 different disability codes. Often, the IEP uses a number in place of the name of the disability code. **Please indicate which code was given to the individual.** You may have to refer to the individual's IEP on file to answer this question.

- Autism (01)
 Deaf-Blind (02)
 Deafness (03)
 Emotional Disturbance (04)
 Hearing Impairment (05)
 Mental Retardation (06)
 Multiple Disabilities (07)
 Orthopedic impairment (08)
 Other Health Impairment (09)
 Specific Learning Disability (10)
 Speech or Language Impairment (11)
 Traumatic Brain Injury (12)
 Visual Impairment including blindness (13)

23. What is the individual's disability listed on the service funding plan?

24. Does your agency have a psychological assessment on file for the individual?

- No
- Don't Know
- Yes- If yes, please indicate the date on the most recent psychological evaluation in the individual's records:

_____ (dd/mm/yyyy) and check the box that corresponds to the range from the full scale IQ score found in that report:

- ≥ 70
- 55- 69
- 40-54
- 25-39
- ≤ 24

25. Does the individual currently receive a monthly SSI/SSDI check?

- Yes
- No
- Don't Know

26. Does the individual have a DORS Counselor?

- Yes
- No
- Don't Know

27. Has DORS provided funding to your agency to provide services to the individual?

- Yes
- No
- Don't Know

28. Did the individual begin receiving supports from your agency (with either DORS or DDA funding) prior to exiting school?

- Yes
- No
- Don't Know

29. Prior to the individual's start date, did he/she visit your agency?

- Yes, with his/her family
- Yes, with his/her DORS Counselor
- Yes, with his/her DDA Service Coordinator/Resource Coordinator
- Yes, with his/her school
- No
- Don't Know

30. Please indicate if you received the following documents from the individual's school or DORS Counselor (please check all that apply):

- IEP
- Psychological Evaluation
- Work History
- Resume
- Work Samples
- Maryland State Exit Document
- Work Evaluations
- Career Assessments
- Profile or portfolio
- DORS plan
- None of the above
- Other: _____

School Experiences

31. What was the last type of school that the individual attended?

- Typical public high school
- Special public school for students with disabilities
- Special public "alternative" high school
- Non-public school for students with disabilities
- Private school
- Residential school
- Post-secondary program for 18-21 year olds with disabilities
- Other: _____
- Don't know

32. To your knowledge, did the individual participate in work training, internships, volunteer/service learning, or paid employment while he/she was in school?

- Yes
- No
- Don't Know

As you know, some students have employment experiences when they are in school. They may have been unpaid or paid; in the school or in the community; with other students or by themselves.

33. Please list up to three work experiences that the individual obtained **prior to beginning** with your agency. If the individual began a job prior to exiting school and maintained the job after beginning with your agency, please include it.

Type of Job	Approximate dates of employment	Location	Paid/Unpaid	Paid?
JOB #1 <input type="checkbox"/> Enclave <input type="checkbox"/> Mobile Crew <input type="checkbox"/> Independent <input type="checkbox"/> Don't Know	<input type="checkbox"/> < 1 month <input type="checkbox"/> 1-3 months <input type="checkbox"/> 4-6 months <input type="checkbox"/> > 6 months <input type="checkbox"/> Don't Know	<input type="checkbox"/> School <input type="checkbox"/> Community (store, restaurant, hospital) <input type="checkbox"/> Don't know	<input type="checkbox"/> Paid by school <input type="checkbox"/> Paid by employer <input type="checkbox"/> Unpaid <input type="checkbox"/> Don't know	<input type="checkbox"/> Sub-minimum wage <input type="checkbox"/> At least minimum wage
JOB #2 <input type="checkbox"/> Enclave <input type="checkbox"/> Mobile Crew <input type="checkbox"/> Independent <input type="checkbox"/> Don't Know	<input type="checkbox"/> < 1 month <input type="checkbox"/> 1-3 months <input type="checkbox"/> 4-6 months <input type="checkbox"/> > 6 months <input type="checkbox"/> Don't Know	<input type="checkbox"/> School <input type="checkbox"/> Community (store, restaurant, hospital) <input type="checkbox"/> Don't know	<input type="checkbox"/> Paid by school <input type="checkbox"/> Paid by employer <input type="checkbox"/> Unpaid <input type="checkbox"/> Don't know	<input type="checkbox"/> Sub-minimum wage <input type="checkbox"/> At least minimum wage
JOB #3 <input type="checkbox"/> Enclave <input type="checkbox"/> Mobile Crew <input type="checkbox"/> Independent <input type="checkbox"/> Don't Know	<input type="checkbox"/> < 1 month <input type="checkbox"/> 1-3 months <input type="checkbox"/> 4-6 months <input type="checkbox"/> > 6 months <input type="checkbox"/> Don't Know	<input type="checkbox"/> School <input type="checkbox"/> Community (store, restaurant, hospital) <input type="checkbox"/> Don't know	<input type="checkbox"/> Paid by school <input type="checkbox"/> Paid by employer <input type="checkbox"/> Unpaid <input type="checkbox"/> Don't know	<input type="checkbox"/> Sub-minimum wage <input type="checkbox"/> At least minimum wage

34. Did the individual have a paid job in the community when he/she exited school?

- Yes
- No
- Don't know

Thank you for taking the time to answer these questions about one of the individuals with whom you work. Now, we would like to know a little bit more about you. It will help us to know more about the people who support the individual. Remember, you will not be identified by name and all information is confidential.

Respondent Information

35. What is your job title?

- Job Coach
- Case Manager
- Employment Specialist
- Program Director
- Other: _____

36. Are you:

- Male
 Female

37. How old are you?

- <25 years
 25-35 years
 36-45 years
 46-55 years
 56-65 years
 66+ years

38. Please check your highest educational degree:

- High School Diploma/GED
 Associates Degree in _____
 Bachelor's Degree in _____
 Master's Degree in _____
 Other: _____

39. For approximately how many months have you known the individual?

- 0-3
 4-6
 7-9
 10-12
 13+

40. Although it may vary from month to month, in an average month, how often do you see the individual?

- Daily
 A few times per week
 Weekly
 A few times per month
 Monthly

Do you have anything else you would like to share about this individual?

Thank you so much!!!

APPENDIX D1
COVER LETTER TO EXECUTIVE DIRECTORS OF CRPS

MEMORANDUM

TO: Executive Directors of DDA Day/Supported Employment Services
FROM: Michael S. Chapman, Executive Director
Monica Simonsen, University of Maryland
DATE: January 4, 2010
RE: Survey of Fiscal Year 2009 Transitioning Youth

In support of the Developmental Disabilities Administration's (DDA) commitment to increase employment opportunities for individuals with developmental disabilities, the DDA has partnered with the University of Maryland's Department of Special Education to conduct a survey of transitioning youth. The survey results will be used to inform educators and policy-makers about how student, family, school, and community factors relate to positive employment outcomes. The findings will not be used to evaluate individuals or provider agencies.

Our records indicate that your agency is currently providing services for students who exited school during FY 2009. We are asking for your cooperation in identifying the staff member(s) from your agency who work directly with the people identified at the top of each attached survey. The staff member(s) will be asked to complete a short questionnaire about the person with whom he/she works. To ensure confidentiality, a unique identifier has been assigned to each individual. **Staff's participation is kept anonymous.**

The staff person can complete the enclosed paper survey, an online version, or complete the survey on the phone by February 4, 2010. The enclosed packets include a consent form to be signed by the individual or his/her guardian and maintained in your records; these consent forms do not need to be returned to DDA. The survey will take approximately 30 minutes to complete. After completing the survey, the staff member(s) will be entered into a drawing for a \$100 American Express gift card. When surveys have been completed and submitted for each of the identified people, the agency will be entered into a drawing for a **\$200 American Express Gift Card.**

We appreciate your help in distributing the enclosed surveys to the appropriate staff members assigned to work with these individuals and encouraging their participation. If you have any questions regarding this research,

please feel free to contact Monica Simonsen at (301) 405-6498 or at mls0915@umd.edu.

Thank you, in advance, for your support of this project.

APPENDIX D2

COVER LETTER TO RESPONDENTS WITH LOGIN PROCEDURES

MEMORANDUM

TO: Provider Agency Staff Member Who Supports:
John Student
4 Digit ID: 1234

FROM: Michael S. Chapman, Executive Director
Monica Simonsen, University of Maryland Department of Special
Education

DATE: January 4, 2010

RE: Survey of Fiscal Year 2009 Transitioning Youth

In support of the Developmental Disabilities Administration's (DDA) commitment to increase employment opportunities for individuals with developmental disabilities, the DDA has partnered with the University of Maryland's Department of Special Education to conduct a survey of transitioning youth who received DDA day and supported employment services in fiscal year 2009, across the state of Maryland. The survey results will be used to inform educators and policy-makers about how student, family, school, and community factors relate to positive employment outcomes. The findings will not be used to evaluate individuals, staff, or provider agencies.

You have been identified as a person who works closely with the individual listed at the top of this letter. We are requesting your help in identifying where this individual is currently working and some other pertinent information about him/her through a short survey. To ensure confidentiality, a unique identifier has been assigned to each individual and is also listed at the top of this letter. **Your participation in this survey is anonymous.**

Some of the questions on this survey are subjective - it is extremely important that the person(s) filling it out know the person well. If you are not sure about the answer to a question, you are encouraged to consult with the person, his/her family, or other staff members. This is not a test about YOUR knowledge – rather accurate information is needed!

There are three ways to participate in the survey: You can complete an online survey, complete the enclosed paper version, or complete a phone survey by February 4, 2010. The survey should take less than 30 minutes to complete.

After completing the survey, you will be asked to provide an email address (that is not linked to your survey responses) and you will be entered into a drawing for \$100 American Express gift card!

To Complete the Online Survey:

1. Go to <http://www.surveymonkey.com/s/SF56CG9>
2. Enter the individual's four digit identification # as listed above

To Complete the Paper Survey:

1. Complete the attached survey
2. Mail completed survey to:
Transitioning Youth Follow-Up Survey
c/o Colleen Gauruder
Developmental Disabilities Administration
201 West Preston Street- 4th Floor
Baltimore, MD 21201

To Complete the Phone Survey: Email Monica Simonsen at mls0915@umd.edu to set up a time to complete the survey.

The enclosed packets include a consent form to be signed by the individual or his/her guardian for your records. This consent form does not need to be returned to DDA but rather maintained in your agency's records.

If you have any questions regarding this research, please feel free to contact Monica Simonsen, Doctoral Candidate, at (301) 405-6498 or at mls0915@umd.edu. Thank you, in advance, for your support of this project.

Appendix D3 RESPONDENT CONSENT FORM

Study Information and Respondent Informed Consent Form

Project Title	Predictors of Supported Employment for Transitioning Youth with Developmental Disabilities
Why is this research being done?	<p>This is a research project being conducted by Monica Simonsen, a doctoral student at the University of Maryland, College Park who is working under the supervision of Dr. Debra Neubert. We are inviting you to participate in this research because you work with an individual with a developmental disability that began receiving DDA funding in 2008.</p> <p>The purpose of this research project is to:</p> <ol style="list-style-type: none"> examine the employment outcomes for transitioning youth who receive funding from DDA in Maryland one year after exiting school; and identify demographic (e.g. race, gender), individual skill (e.g. self-determination), family (e.g. family involvement), school (e.g. school setting, paid work experience), and community (e.g. access to public transportation) variables that staff from adult service agencies report are correlated with these outcomes.
What will I be asked to do?	The procedures involve your participation in a one-time survey about a particular transitioning youth with whom you work. You are asked to complete a brief survey (approximately 30 minutes). The easiest way is to follow the attached login procedures to log in to the secure survey site. You are asked to provide information about the employment outcome(s) for the individual and answer a few questions about his/her skills, experiences, and demographics. You can also complete a mail or phone version of this survey.
What about confidentiality?	<p>We will do our best to keep your personal information confidential. Your name will not appear anywhere on the survey responses. Your contact information will be separated from your survey responses in the electronic database. To help protect the anonymity of the identified youth, we will enter survey data using a four digit code. Hard copy data will be stored in the researcher's home office in a locked file cabinet. All electronic data will be stored on the researcher's password-protected laptop in encrypted file format.</p> <p>If we write a report or article about this research project, your identity will be protected to the maximum extent possible. For example, your name, the identified youth and your agency will not be identified by name. General terms will be used to describe you and your role at the agency, such as "a job coach." Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.</p>
What are the risks of this research?	There are no known risks associated with participating in this research project.
What are the benefits of this research?	This research is not designed to help you personally, but the results may help the investigator learn more the employment outcomes of transitioning youth with developmental disabilities and the types of factors that impact these outcomes. We hope that, in the future, other people might benefit from this study through improved understanding of the skills and school experiences that may be correlated with improved employment outcomes.
Do I have to be in this research? May I stop participating at any time?	Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.
What if I have questions?	This research is being conducted by Monica Simonsen, a doctoral student under the supervision of Debra Neubert, Ph.D. in the Department of Special Education at the University of Maryland, College Park. If you have any questions about the research study itself, please contact Debra Neubert, Ph.D. at Department of Special Education, 1308 Benjamin Building, College Park, Maryland, 20742; (telephone) 301-405-6466; (email) dneubert@umd.edu . If you have questions about your rights as a research subject or wish to report a research-related injury, please contact: Institutional Review Board Office, University of Maryland, College Park, Maryland, 20742; (email) irb@deans.umd.edu; (telephone) 301-405-0678 . This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.
Statement of Age of Subject and Consent	<p><u>Your participation in this survey indicates that:</u></p> <ul style="list-style-type: none"> • You are at least 18 years of age • The research has been explained to you; • Your questions have been fully answered; and • You freely and voluntarily choose to participate in this research project.

APPENDIX D4
RAFFLE ENTRY FORM

Participation Raffle

Thank you for participating in the Transitioning Youth Follow-Up study. If you wish to be entered into the raffle for a **\$100 American Express gift card**, please write your email address in the space provided and return with the completed survey. As soon as the survey is received, this form will be separated from the rest of the survey and your email address will not be linked to your survey responses.

@

**** If you take the online survey, you will have the opportunity to enter the raffle after completing the survey.**

APPENDIX D5
SUBJECT CONSENT FORM

Individual Consent Form

This form is for the adult provider’s records. It is not necessary to return to DDA.

TO: Individual Receiving DDA Employment Services
FROM: Monica Simonsen, University of Maryland
DATE: January 4, 2010
RE: Transitioning Youth Survey

It’s hard to believe that it has been more than a year since you exited school and began receiving support from an adult agency!

My name is Monica Simonsen and I am a doctoral student in Special Education at the University of Maryland. I have partnered with the Developmental Disabilities Administration (DDA) of Maryland to conduct a survey. We are interested in finding out where recent graduates are working. I am conducting a survey of the staff who work at the provider agencies across Maryland about the transitioning youth with whom they work.

For this study, you do not need to provide any information. The staff at your provider agency will be sharing information about your current job, your school experiences, and some information about your strengths and needs. You will never be identified by name and your information will be kept confidential. If you consent to participate in this study, please sign below and return it to your adult provider agency.

If you have any questions regarding this research, please feel free to contact me at (301) 405-6498 or email me at mls0915@umd.edu.

Thank you, in advance, for your help.

I agree to participate in the described study. My participation is voluntary and I understand that I can withdraw my consent at any time.

Signature of Individual/Guardian

Date

APPENDIX D6
REMINDER POSTCARD TO EXECUTIVE DIRECTORS



Dear Executive Director;

You should have received a package in the mail that contained surveys about individuals who began receiving funding in FY 2009. Your staff's participation is anonymous and confidential and the transitioning youth will not be identified by name.

Please make sure that all surveys are completed by February 4, 2010 so your agency will be entered into the raffle for a **\$200 American Express gift card!!!** Please contact Monica Simonsen at mls0915@umd.edu if you have any questions!

Thank you for your participation!!!

APPENDIX E1

FOLLOW-UP LETTER TO CRP EXECUTIVE DIRECTORS

MEMORANDUM

TO: Executive Directors of DDA Day/Supported Employment Services
FROM: Michael S. Chapman, Executive Director
Monica Simonsen, University of Maryland
DATE: February 16, 2010
RE: Survey of Fiscal Year 2009 Transitioning Youth

In support of the Developmental Disabilities Administration's (DDA) commitment to increase employment opportunities for individuals with developmental disabilities, the DDA has partnered with the University of Maryland's Department of Special Education to conduct a survey of transitioning youth. The survey results will be used to inform educators and policy-makers about how student, family, school, and community factors relate to positive employment outcomes. The findings will not be used to evaluate individuals or provider agencies.

Our records indicate that your agency is currently providing services for students who exited school during FY 2009. We are asking for your cooperation in identifying the staff member(s) from your agency who work directly with the people identified at the top of each enclosed letter. The staff member(s) will be asked to complete a short questionnaire about the person with whom he/she works. To ensure confidentiality, a unique identifier has been assigned to each individual. **Staff's participation is kept anonymous.**

A package was sent to your agency last month containing surveys for each of the identified individuals. We appreciate your help in distributing the enclosed packet(s) to the appropriate staff members assigned to work with these individuals and encouraging their participation. The staff person can complete the survey online or request a phone or mail survey. The enclosed packet(s) include instructions for the staff person who supports the identified individual and a consent form to be signed by the individual or his/her guardian and maintained in your records; these consent forms do not need to be returned to DDA. The survey will take approximately 30 minutes to complete. After completing the survey, the staff member(s) will be entered into a drawing for a \$100 American Express gift card. When surveys have been completed and submitted for each of the identified people, the agency will be entered into a drawing for a **\$200 American Express Gift Card.**

If you have any questions regarding this research, please feel free to contact Monica Simonsen at (301) 405-6498 or at mls0915@umd.edu.

Thank you, in advance, for your support of this project.

APPENDIX E2

FOLLOW-UP LETTER TO RESPONDENTS
MEMORANDUM

TO: Provider Agency Staff Member Who Supports:
John Student
4 Digit ID: 1234

FROM: Michael S. Chapman, Executive Director
Monica Simonsen, University of Maryland Department of Special
Education

DATE: January 4, 2010

RE: Survey of Fiscal Year 2009 Transitioning Youth

In support of the Developmental Disabilities Administration's (DDA) commitment to increase employment opportunities for individuals with developmental disabilities, the DDA has partnered with the University of Maryland's Department of Special Education to conduct a survey of transitioning youth who received DDA day and supported employment services in fiscal year 2009, across the state of Maryland. The survey results will be used to inform educators and policy-makers about how student, family, school, and community factors relate to positive employment outcomes. The findings will not be used to evaluate individuals, staff, or provider agencies.

You have been identified as a person who works closely with the individual listed at the top of this letter. We are requesting your help in identifying where this individual is currently working and some other pertinent information about him/her through a short survey. To ensure confidentiality, a unique identifier has been assigned to each individual and is also listed at the top of this letter. **Your participation in this survey is anonymous.**

Some of the questions on this survey are subjective - it is extremely important that the person(s) filling it out know the person well. If you are not sure about the answer to a question, you are encouraged to consult with the person, his/her family, or other staff members. This is not a test about YOUR knowledge – rather accurate information is needed!

There are three ways to participate in the survey: You can complete an online survey, complete a paper version, or complete a phone survey by March 5, 2010. The survey should take less than 30 minutes to complete. After completing

the survey, you will be asked to provide an email address (that is not linked to your survey responses) and you will be entered into a drawing for \$100 American Express gift card!

To Complete the Online Survey:

3. Go to <http://www.surveymonkey.com/s/TYfollowup>
4. Enter the individual's four digit identification # as listed above

To Complete the Paper Survey:

3. Email Monica Simonsen at mls0915@umd.edu to request a paper version of the survey.
4. Mail completed survey to:

Transitioning Youth Follow-Up Survey
c/o Colleen Gauruder
Developmental Disabilities Administration
201 West Preston Street- 4th Floor
Baltimore, MD 21201

To Complete the Phone Survey: Email Monica Simonsen at mls0915@umd.edu to set up a time to complete the survey.

The attached consent form is to be signed by the individual or his/her guardian for your records. This consent form does not need to be returned to DDA but rather maintained in your agency's records.

If you have any questions regarding this research, please feel free to contact Monica Simonsen, Doctoral Candidate, at (301) 405-6498 or at mls0915@umd.edu. Thank you, in advance, for your support of this project.

APPENDIX F1
Multicollinearity Tables

Assessing Multicollinearity for all Variables		
	Collinearity Statistics	
	Tolerance	VIF
Gender	0.935	1.070
Race/Ethnicity	0.843	1.186
SSI	0.867	1.154
Unemployment Rate	0.892	1.121
Self-Determination	0.261	3.829
Self-Management	0.250	3.999
Community Mobility	0.412	2.429
Lives with Family	0.830	1.205
Family SE	0.693	1.442
Family Involvement	0.793	1.261
Typical High School	0.794	1.260
Post-Secondary Program	0.771	1.296
Unpaid Work Experience	0.811	1.232
Stipend Work Experience	0.935	1.070
Paid Work Experience	0.843	1.186
DORS Counselor	0.867	1.154
Funding Prior to Exit	0.892	1.121

Assessing Multicollinearity for Final Model		
	Collinearity Statistics	
	Tolerance	VIF
Race/Ethnicity	0.965	1.036
Self-Management	0.487	2.053
Community Mobility	0.459	2.178
Family SE	0.817	1.225
Paid Work Experience	0.928	1.078

Bibliography

- Agran, M. (1997). *Student-directed learning: Teaching self-determination skills*. Pacific Grove, CA: Brooks/Cole.
- Agran, M., Snow, K., & Swaner, J. (1999). Teacher perceptions of self-determination: Benefits, characteristics, strategies. *Education and Training in Mental Retardation, 34*(3), 293.
- Alliance for Full Participation. (2010). *About AFP*. Retrieved from <http://www.allianceforfullparticipation.org/about-afp>, July 5, 2010.
- Arc of Maryland (2009). *Waiting list data*. Retrieved from <http://www.thearcmd.org/shared/Waiting%20List%20Data%20-%20DDA.pdf>, June 30, 2010.
- Baer, R.M., Flexer, R.W., Beck, S., Amstutz, N., Hoffman, L., Brothers, J., Stelzer, D. & Zechman, C. (2003). A collaborative followup study on transition service utilization and post-school outcomes. *Career Development for Exceptional Individuals, 26* (1), 7-25.
- Bellamy, G.T., Rhodes, L.E. & Albin, J.M. (1986). Supported employment. In W.E. Kiernan & J.A. Stark (Eds.), *Pathways to employment for adults with developmental disabilities* (pp.129-138). Baltimore: Paul H. Brookes Publishing Co.
- Benz, M.R., Lindstrom, L., & Yovanoff, P. (2000). Improving graduation and employment outcomes for students with disabilities: Predictive factors and student perspectives. *Exceptional Children, 66*, 509-529.
- Benz, M.R., Yovanoff, P., & Doren, B. (1997). School-to-Work components that

- predict postschool success for students with and without disabilities. *Exceptional Children*, 63, 151-165.
- Berry, H., Price-Ellingstad, D., Halloran, W., & Finch, T. (2000). Supplemental security income and vocational rehabilitation for transition-age individuals with disabilities. *Journal of Disability Policy Studies*, 10(2), 151-165.
- Bhattarai, S. and Winsor, J.E. (2008). Tracking employment and day support participation and outcomes in state intellectual disability and developmental disability agencies. *DataNote Series, Data Note XX*. Boston, MA: Institute for Community Inclusion.
- Blackorby, J., & Wagner, M. (1996). Longitudinal postschool outcomes of youth with disabilities: Findings from the National Longitudinal Transition Study. *Exceptional Children*, 62, 399-413.
- Bonham, G.S., Volkman, J., & Basehart, S. (2008). *Ask Me! FY 2007: The quality of life of Marylanders with developmental disabilities receiving DDA-funded supports*. Baltimore, MD: The Arc of Maryland.
- Brown, L., Shiraga, B., & Kessler, K. (2006). The quest for ordinary lives: The integrated post-school vocational functioning of 50 workers with significant disabilities. *Research & Practice for Persons with Severe Disabilities*, 31, 93-121.
- Butterworth, J., Smith, F.A., Hall, A.C., Migliore, A., Winsor, J.E. (2008). *StateData: The national report on employment services and outcomes, 2008*. Boston, MA: The Institute of Community Inclusion (UCEDD).
- Carmines, E. G. & Zeller, R.A. (1991). *Reliability and validity assessment*.

Newbury Park: Sage Publications.

- Cohen, J., Cohen, P., West, S.G., & Aiken, L.S. (Eds.). (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Colley, D.A., & Jamison, D. (1998). Postschool results for youth with disabilities: Key indicators and policy implications. *Career Development for Exceptional Individuals, 21*, 145-160.
- Conley, R.W. (2007). Maryland issues in supported employment. *Journal of Vocational Rehabilitation, 26*, 115-121.
- Conley, R.W. & Noble, J.H. (1990). Benefit-cost analysis of supported employment. In F.R. Rusch (Ed.), *Supported employment: Models, methods, and issues* (pp. 271- 287). Sycamore, IL: Sycamore Publishing Company.
- Converse, J.M., & Presser, S. (1986). *Survey questions: Handcrafting the standardized questionnaire*. Thousand Oaks, CA: SAGE Publications, Inc.
- Cunningham, P.J., & Altman, B.M. (1993). The effects of socioeconomic and contextual factors on employment of persons with mental retardation living in residential facilities. *Journal of Developmental and Physical Disabilities, 5*, 281-296.
- Degenette, C. (2001). Supported employment services for persons with developmental disabilities: Unmet promises and future challenges for rehabilitation counselors. *Journal of Applied Rehabilitation Counseling,*

31, 41-47.

Developmental Disabilities Act of 1984, Pub. L. No. 98-527, 42 U.S.C.A. § 6000.

Digby, P.G.N. (1983). Approximating the tetrachoric correlation coefficient.

Biometrics, 39(3), 753-757.

Dixon, R.M., & Reddacliff, C.A. (2001). Family contribution to the vocational lives of vocationally competent young adults with intellectual disabilities.

International Journal of Disability, Development and Education, 48, 193-206.

Doren, B., & Benz, M.R. (1998). Employment inequality revisited: Predictors of better employment outcomes for young women with disabilities in transition. *The Journal of Special Education*, 31, 425-442.

Eggleton, I., Robertson, S., Ryan, J., & Kober, R. (1999). The impact of employment on the quality of life of people with an intellectual disability. *Journal of Vocational Rehabilitation*, 13, 95-107.

Eisenman, L.T., Tanverd, A., Perrington, C., & Geiman, A. (2009). Secondary and postsecondary community activities of youth significant intellectual disabilities. *Education and Training in Developmental Disabilities*, 44(2), 168-176.

Erwin, E. J. (1993). *The philosophy and status of inclusion. Envision: A publication of The Lighthouse National Center for Vision and Child Development*, p.1.

Foley, S.M., Butterworth, J., & Heller, A. (1999). Vocational rehabilitation interagency activity improving supported employment for people with

severe disabilities. *Focus on Autism and Other Developmental Disabilities, 15*, 37-42.

Ford, A., Schnoor, M.S., Meyer, L., Davern, L., Black, J., & Dempsey, P. (1989).

The syracuse community-referenced curriculum guide for students with moderate and severe disabilities. Baltimore, MD: Paul H. Brookes Publishing Co., Inc.

Fowler, F.J. (1995). *Improving survey questions: Design and evaluation*.

Thousand Oaks, CA: SAGE Publications, Inc.

Fowler, F.J. (1988). *Survey research methods*. Newberry Park, CA: SAGE

Publications, Inc.

Frank, A., Sitlington, P., Cooper, L., & Cool, V. (1990). Adult adjustment of

recent graduates of Iowa mental disabilities programs. *Education and Training in Mental Retardation, 25*(1), 62- 75.

Freedman, R.I. (2001). Ethical challenges in the conduct of research involving

persons with mental retardation. *Mental Retardation, 39*, 130-141.

Gauruder, C. (2008, December). Maryland Developmental Disabilities

Administration: Employment First. Presentation to the Annual Maryland Transition Conference, Baltimore, MD.

Grace-Martin, K. (2010, June 10). Missing data: The good the bad and the

unthinkable [Audio podcast]. Retrieved from

<http://www.analysisfactor.com/learning/teletraining6.html>.

Grigal, M., Simonsen, M., & Vratarich, S. (2007, November). *Transition to*

college: Improving options and outcomes for students with intellectual

disabilities. Paper presented at the Think College Symposium, Detroit, Michigan.

- Grigal, M., & Neubert, D.A. (2004). Parents' in-school values and postschool expectations for transition aged youth with disabilities. *Career Development for Exceptional Individuals, 27*, 65-85.
- Grigal, M., Neubert, D.A., Moon, M.S., & Graham, S. (2003). Parents and teachers views of self-determination for secondary students with disabilities. *Exceptional Children, 70*, 97-112.
- Groves, R.M. Singer, E., & Corning, A. (2000). Theory of survey participation: Description and an illustration. *The Public Opinion Quarterly, 64*, 299-309.
- Hanley-Maxwell, C., Rusch, F.R., Chadsey-Rusch, J., & Renzaglia, A. (1986). Reported factors contributing to job terminations of individuals with severe disabilities. *Journal of Association of Persons with Severe Handicaps, 11*, 45- 52.
- Harris, L. (2004). *Harris survey documents trends impacting 54 million Americans*. Washington D.C.: National Organization on Disability. Retrieved on January 27, 2009 from <http://www.lilaoregon.org/Harrissurvey.html>.
- Hasazi, S., Johnson, R., Hasazi, J., Gordon, L., & Hull, M. (1989). Employment of youth with and without handicaps following high school: Outcomes and correlates. *The Journal of Special Education, 23*, 243- 255.
- Heal, L.W., & Rusch, F.R. (1995). Predicting outcomes for students who leave

special education high school programs. *Exceptional Children*, 61, 472-87.

Individuals with Disabilities Education Improvement Act, Amendments of 2004,

Pub. L. No. 108-446, U.S.C. 20. 1400 et seq.. (West, 2004).

Inge, K.J., Wehman, P., Revell, G., Erickson, D., Butterworth, J. & Gilmore, D.

(2009). Survey results from a national survey of community rehabilitation

providers holding special wage certificates. *Journal of Vocational*

Rehabilitation, 30, 67- 85.

Institute for Community Inclusion. (2010). *State employment leadership network*.

Retrieved from

http://www.communityinclusion.org/doc.php?doc_id=59&id=16&type=pr

[object](#), July 5, 2010.

Irwin, J.R., & McClelland, G.H. (2003). Negative consequences of

dichotomizing continuous predictor variables. *Journal of Marketing*

Research, 40, 366-371.

Kennedy, J.F. (1961). *Statement by the President on the Need for a National*

Program To Combat Mental Retardation. Retrieved on February 15, 2009

From

http://www.jfklink.com/speeches/jfk/publicpapers/1961/jfk413_61.html

Kohler, P.D., & Field, S. (2003). Transition-focused education: Foundation for

the future. *The Journal of Special Education*, 37, 174- 183.

Kregel, J., & Wehman, P. (1997). Supported employment: A decade of

- employment outcomes for individuals with significant disabilities. In W.E. Kiernan & R.L. Schalock (Eds.), *Integrated employment: Current status and future trends* (pp. 31-47). Washington, D.C.: American Association on Mental Retardation.
- Luft, P., & Rubin, S. (1999). Supported employment services to students with severe disabilities: Emphasis patterns across stakeholders. *Career Development for Exceptional Individuals*, 22, 101-116.
- Luedtke, E., Halloran-Tornquist, E., & Moon, S. (2010). *Getting around town: teaching community mobility skills to students with disabilities*. Reston, VA: Council for Exceptional Children
- Lutfiyya, Z.M., Rogan, P., & Shoultz, B. (1988). Supported employment: A conceptual overview. Syracuse, NY: Center on Human Policy Research and Training Center on Community Integration.
- Mank, D. (1995). The underachievement of supported employment: A call for reinvestment. *Journal of Disability Policy Studies*, 5, 1-24.
- Mank, D., Cioffi, A., & Yovanoff, P. (2003). Supported employment outcomes across a decade: Is there evidence of improvement in the quality of implementation? *Mental Retardation*, 41, 188-197.
- Mank, D., Cioffi, A., & Yovanoff, P. (1998). Employment outcomes for people with severe disabilities: Opportunities for improvement. *Mental Retardation*, 36, 205-216.
- Maxwell, J.A. (2005). *Qualitative research design: An interactive approach*. San Francisco, CA: Jossey-Bass Publishers.

- Merriam, S.B. (1998). *Qualitative research and case study application in education*. San Francisco, CA: Jossey-Bass Publishers.
- Metzel, D.S., Boeltzig, H., Butterworth, J., Sulewski, S., & Gilmore, D.S. (2007). Achieving community membership through community rehabilitation providers' services: Are we there yet? *Intellectual and Developmental Disabilities, 45*, 149-160.
- Migliore, A. & Butterworth, J. (In Press). Trends in outcomes of the vocational rehabilitation program for adults with developmental disabilities: 1995-2005. *Rehabilitation Counseling Bulletin*.
- Migliore, A. & Butterworth, J. (In Press). Analysis of the vocational rehabilitation program outcomes for persons with intellectual and developmental disabilities. *Rehabilitation Counseling Bulletin*.
- Migliore, A., Mank, D., Grossi, T., & Rogan, P. (2007). Integrated employment or sheltered workshops: Preferences of adults with intellectual disabilities, their families, and staff. *Journal of Vocational Rehabilitation, 26*, 5-19.
- Moon, S., Neubert, D., & Simonsen, M. (in Press). Supported employment: What students, families, and transition specialists need to know. *Education and Training in Developmental Disabilities*.
- Moore, C.L., Feist-Price, S., Alston, R.J. (2002). VR services for persons with severe/profound mental retardation: Does race matter? *Rehabilitation Counseling Bulletin, 45*(3), 162- 167.
- Morgan, R.L., Ellerd, D.A., Jensen, K., & Taylor, M.J. (2000). A survey of community employment placements: Where are youth and adults

working? *Career Development for Exceptional Individuals*, 23, 73-86.

Murphy, S.T. & Rogan, P.M. (1995). *Closing the shop: Conversion from sheltered to integrated work*. Baltimore, MD: Paul H. Brookes Publishing.

Nardi, P.M. (2003). *Doing survey research: A guide to quantitative methods*. Boston, MA: Pearson Educational, Inc.

National Council on Disability. (2000). *Transition and post-school outcomes for youth with disabilities: Closing the gaps to post-secondary education and employment*. Retrieved from http://www.ncd.gov/newsroom/publications/2000/transition_11-01-00.htm, October 1, 2008.

National Secondary Transition Technical Assistance Center (NSTTAC). (2010). Correlational results table. Retrieved from <http://www.nsttac.org/ebp/PredictorFiles/ResultsTableCorrelational.pdf>, May 1, 2010.

Nirje, B. (1969). *The normalization principle and its human management implications*. In R. Kegel, & W. Wolfensberger (Eds.), *Changing patterns in residual services for the mentally retarded*. Washington, D.C.: President's Committee on Mental Retardation.

Newman, L., Wagner, M., Cameto, R., & Knokey, A.-M. (2009). *The post-high school outcomes of youth with disabilities up to 4 years after high school. A report of findings from the National Longitudinal Transition Study-2 (NLTS2) (NCSE 2009-3017)*. Menlo Park, CA: SRI International.

Available at

www.nlts2.org/reports/2009_04/nlts2_report_2009_04_complete.pdf.

- Noonan, P.M., Morningstar, M.E., & Erickson, A.G. (2008). Improving interagency collaboration: Effective strategies used by high-performing local districts and communities. *Career Development for Exceptional Individuals, 31*, 132-143.
- O'Brien, Robert M. (2007). A Caution Regarding Rules of Thumb for Variance Inflation Factors. *Quality and Quantity 41*(5), 673-690.
- Olson, D., Cioffi, A., Yovanoff, P., & Mank, D. (2000). Gender differences in supported employment. *Mental Retardation, 38*, 89-96.
- Osborne, J. W. (2000). Advantages of hierarchical linear modeling. *Practical Assessment, Research & Evaluation, 7*(1). Retrieved June 14, 2009, from <http://PAREonline.net/getvn.asp?v=7&n=1>.
- Pampel, F.C. (2000). *Logistic regression: A primer*. Thousand Oaks, CA: SAGE Publications, Inc.
- Pedhazur, E. J. (1982). *Multiple regression in behavioral research: Explanation and prediction* (2nd ed.). New York: Holt, Rinehart, & Winston.
- Phelps, A., & Hanley-Maxwell, C. (1997). School-to-work transitions for youth with disabilities: A review of outcomes and practices. *Review of Educational Research, 67*, 197-226.
- Punch, K. F. (2003). *Survey Research: The Basics*. London: Sage Publications Ltd.
- Rabren, K., Dunn, C., & Chambers, D. (2002). Predictors of post-high school employment among young adults with disabilities. *Career Development*

for Exceptional Individuals, 25, 25-40.

Redd, V.A. (2004). *A public school-sponsored program for students ages 18- 21 with significant disabilities located on a community college campus: A case study.* Digital Repository at the University of Maryland.

Rehabilitation Act Amendments of 1986, Pub. L. No. 99-506, 29 U.S.C. § 701 *et seq.*

Repetto, J.B., Webb, K.W., Garvan, C.W., & Washington, T. (2002). Connecting student outcomes with transition practices in Florida. *Career Development for Exceptional Individuals, 25, 123-139.*

Rizzolo, M.C., Hemp, R., Braddock, D., & Pomeranz-Essley, A. (2004). *The state of the states in developmental disabilities: 2004.* Boulder: University of Colorado. Coleman Institute for Cognitive Disabilities and Department of Psychiatry.

Rusch, F.R., & Braddock, D. (2004). Adult day programs versus supported employment (1988- 2002): Spending and service practices of mental retardation and developmental disabilities state agencies. *Research and Practice for Persons with Severe Disabilities, 29, 237-242.*

Rusch, F.R. & Hughes, C. (1990). Historical overview of supported employment. In F.R. Rusch (Ed.), *Supported employment: Models, methods, and issues* (pp. 5-15). Sycamore, IL: Sycamore Publishing Company.

Rusch, F.R., Enchelmaier, J.F., & Kohler, P.D. (1994). Employment outcomes and activities for youths in transition. *Career Development for Exceptional Individuals, 17, 1-16.*

Rusch, F., Heal, L., & Cimera, R. (1997). Predicting the earnings of supported

- employees with mental retardation: A longitudinal study. *American Journal on Mental Retardation*, 101, 630-644.
- Saris, W.E., Gallhofer, I.N. (2007). *Design, evaluation, and analysis of questionnaires for survey research*. Hoboken, NJ: John Wiley & Sons, Inc.
- Schalock, R.L. et al. (2009). *Intellectual disability: Definition, classification, and systems of supports* (11th Ed). Washington, DC: American Association on Intellectual and Developmental Disabilities.
- Sitlington, P., Neubert, D. & Clark, G. (2010). *Transition Education and Services for Students with Disabilities* (5th ed.). Boston, MA: Pearson.
- Smith, J., & Polloway, E. (1993). Institutionalization, involuntary sterilization, and mental retardation: Profiles from the history of the practice. *Mental Retardation*, 31, 208-214. Retrieved February 15, 2009, from PsycINFO database.
- Stephens, D.L., Collins, M.D., & Dodder, R.A. (2005). A longitudinal study of employment and skill acquisition among individuals with developmental disabilities. *Research in Developmental Disabilities*, 26, 469-486.
- Stuart, C.H., & Smith, S.W. (2002). Transition planning for students with severe disabilities: Policy implications for the classroom. *Intervention in School & Clinic*, 37, 234.
- The Association for the Severely Handicapped (TASH). (1989, December). *TASH resolution on integrated employment*. Retrieved November 1, 2008, <http://www.tash.org/IRR/resolutions/>

- Tourangeau, R., Rips, L., & Rasinski, K. (2000). *The psychology of survey response*. New York, NY US: Cambridge University Press. Retrieved from PsycINFO database.
- U.S. Bureau of Labor Statistics. (n.d.). Unemployment Rates by County in Maryland, February 2009. Retrieved April 21, 2009, from <http://www.bls.gov/ro3/mdlaus.htm>.
- U.S. Census Bureau. (n.d.) State and County QuickFacts. Retrieved April 21, 2009 from <http://quickfacts.census.gov/qfd/states/24000.html>.
- U.S. Department of Labor (n.d.) Fact Sheet #39B: Prevailing wage and commensurate wages under Section 14(c) of the Fair Labor Standards Act (FLSA), Retrieved June 1, 2010 from <http://www.dol.gov/esa/regs/compliance/whd/whdfs39b.htm>.
- U.S. Equal Employment Opportunity Commission (2004). Questions and answers about persons with intellectual disabilities in the workplace and the Americans with Disabilities Act. Retrieved November 14, 2008, from www.eeoc.gov/facts/intellectual_disabilities.html.
- Vogt, W.P. (1999). *Dictionary of statistics and methodology: A nontechnical guide for the social sciences (2nd ed)*. London: Sage.
- Wacker, D.P. (1989). Supported employment as an intervention package: A preliminary analysis of functional variables. *Journal of Applied Behavior Analysis*, 22, 429-439.
- Wagner, M. (1991). *The benefits of secondary vocational education for young people with disabilities*. Paper presented at the Annual meeting of the

American Educational Research Association, Chicago.

Wagner, M., Newman, L., Cameto, R., Garza, N., and Levine, P. (2005). *After high school: A first look at the postschool experiences of youth with disabilities. A Report from the National Longitudinal Transition Study-2 (NLTS2)* Menlo Park, CA: SRI International. Available at www.nlts2.org/reports/2005_04/nlts2_report_2005_04_complete.pdf.

Wagner, M., Newman, L., Cameto, R., Levine, P., & Garza, N. (2006). *An Overview of findings from wave 2 of the National Longitudinal Transition Study-2 (NLTS2)*. Menlo Park, CA: SRI International. Available at www.nlts2.org/reports/2006_08/nlts2_report_2006_08_complete.pdf.

Wehman, P. (1988). Supported employment: Toward zero exclusion of persons with severe disabilities. In Wehman & Moon (Eds.) *Vocational Rehabilitation and Supported Employment* (pp. 3-14). Baltimore, MD: Paul H. Brookes Publishing Co.

Wehman, P., Brooke, V.A., & Revell Jr., W.G. (2007). Inclusive employment: Rolling back segregation of people with disabilities. In P. Wehman, K.J. Inge, W.G. Revell Jr., & V. Brooke (Eds.), *Real work for real pay: Inclusive employment for people with disabilities*. Baltimore, MD: Paul H. Brookes Publishing.

Wehman, P., & Kregel, J. (1995). At the crossroads: Supported employment a decade later. *The Journal of The Association for Persons with Severe Handicaps*, 20, 286-299.

Wehmeyer, M. (1992). Self-determination: Critical skills for outcome-oriented

- transition services. *Journal for Vocational Special Needs Education*, 15(1), 3-7.
- Wehmeyer, M. (1995). *The Arc's self-determination scale: Procedural guidelines*. Arlington, TX: The Arc of the United States.
- Wehmeyer, M.L., & Palmer, S.B. (2003). Adult outcomes for students with cognitive disabilities three years after high school: The impact of self-determination. *Education and Training in Developmental Disabilities*, 38, 131-144.
- White, J., & Weiner, J.S. (2004). Influence of least restrictive environment and community based training on integrated employment outcomes for transitioning students with severe disabilities. *Journal of Vocational Rehabilitation*, 21, 149- 56.
- Will, M. (1984a). Supported employment services: An OSERS position paper. Washington D.C.: Office of Special Education and Rehabilitation Services.
- Will, M. (1984b). *OSERS programming for the transition of youth with disabilities: Bridges from school to working life*. Washington D.C.: Office of Special Education and Rehabilitation Services.
- Will, M. (1986, February). Educating children with learning problems: A shared responsibility. *Exceptional Children*, 52, 411-415. Retrieved February 15, 2009, from PsycINFO Database.
- Winsor, J., & Butterworth, J. (2008). Trends and milestones: Participation in integrated employment and community-based non work services for

individuals supported by state intellectual/developmental disabilities agencies. *Intellectual and Developmental Disabilities*, 46, 166-168.

Yu, J., Newman, L. & Wagner, M. (2009). Secondary school experiences and academic performance of students with mental retardation. Menlo Park, CA: SRI International. Available at <http://ies.ed.gov/ncser/pdf/20093020.pdf>