PREDICTORS OF SUCCESSFUL OUTCOMES OF TRANSITION-AGED YOUTH IN VOCATIONAL REHABILITATION IN THE STATE OF OHIO

A dissertation submitted to the Kent State University College of Graduate School of Education, Health, and Human Services in partial fulfillment of the requirements for the degree of Doctor of Philosophy

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The purpose of this study was to descriptively explore transition-aged youth in state vocational rehabilitation (VR) and to determine if predictor variables could be identified for successful employment outcomes. In addition, public assistance and supported employment services were also analyzed for predictive value. The participants of this study included 3,215 vocational rehabilitation consumers who were referred prior to age 23 and were closed in fiscal year 2006 after a rehabilitation plan was initiated.

At closure, more than half the participants were closed successfully in competitive employment. The majority were working in service, clerical and sales, or professional/technical/managerial positions after receiving VR services focused on understanding the consumer’s needs and creating appropriate plans (guidance and assessment), preparing for a job (college and miscellaneous training), obtaining a job (job search, placement, transportation) and then retaining employment (on the job supports). In addition, Supplemental Security Income recipients and consumers receiving non-Title IV funded supported employment services were less likely to be employed at case closure.
Implications for transition and rehabilitation practice include: the necessity of specific training for VR counselors working with the transition population; the higher rate of success through services such as diagnostics, vocational guidance, further training, and placement; and more attention to populations who are at risk or may be more effectively served in appropriate group settings such as those with cognitive or emotional disorders.
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# TABLE OF CONTENT

<table>
<thead>
<tr>
<th>ACKNOWLEDGMENTS</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>iv</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LIST OF TABLES</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>vii</td>
</tr>
</tbody>
</table>

## CHAPTER

I INTRODUCTION
- School to Work Transition: 3
- Research Findings Supporting Variable Selection: 4
- Services and Personal Characteristics: 4
- Transition-aged Youth in VR: 7
- Research on School Services: 8
- Statement of the Problem: 10
- Purpose of the Study: 11
- Research Questions: 14

II REVIEW OF LITERATURE
- Background on Policy and Practices: 15
- Legislative Background: 17
- Transition Models and Promising Practices in Rehabilitation Services: 21
- Role of Rehabilitation in Transition: 26
- Related Empirical Studies: 29
- Summary: 40

III METHOD
- Project Design: 41
- Participants: 42
- Procedures and Variables: 43
- Instrumentation: 46
- Data Analysis: 46
- Summary: 48

IV RESULTS
- Post School Employment Outcomes: 50
- Rehabilitation Services Received: 50
- Characteristics of Individuals Receiving Services: 53
- Predictive Value for Rehabilitation Outcomes: 62
- Public Support and Supported Employment: 67
- Summary: 69
V DISCUSSION……………………………………………………………………………….70
Explanation of Findings across the Research Questions…………………………….71
Post School Employment Outcomes…………………………………………………71
Services Received………………………………………………………………………73
Characteristics of Individuals Receiving Services…………………………………77
Predictive Value………………………………………………………………………..81
Public Support and Supported Employment………………………………………...86
Outcomes of Research………………………………………………………………87
Implications for Practice……………………………………………………………...89
Recommendations for Policy…………………………………………………………92
Recommendations for Further Research…………………………………………95
Limitations………………………………………………………………………………96
Conclusions…………………………………………………………………………....96

APPENDIX A: GLOSSARY OF VR SERVICES………………………………………..98

REFERENCES…………………………………………………………………………106
<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Measures of Central Tendency for Earning and Hours Per Week for Successful Closures</td>
<td>52</td>
</tr>
<tr>
<td>2. Frequency of Occupational Type for Successful Closures</td>
<td>53</td>
</tr>
<tr>
<td>3. Frequency of Services Received</td>
<td>55-56</td>
</tr>
<tr>
<td>4. Frequencies for Disability Type</td>
<td>57</td>
</tr>
<tr>
<td>5. Percentage of Disability by Services Delivered</td>
<td>57-58</td>
</tr>
<tr>
<td>6. Frequencies Between Gender and Race/Ethnicity</td>
<td>59</td>
</tr>
<tr>
<td>7. Frequencies Between Disability Type and Race/Ethnicity</td>
<td>59-60</td>
</tr>
<tr>
<td>8. Frequencies Between Gender and Services</td>
<td>60-61</td>
</tr>
<tr>
<td>9. Summary of Logistic Regression Analysis of Services for Employment Outcome</td>
<td>63-64</td>
</tr>
<tr>
<td>10. Summary of Logistic Regression Analysis of Personal Characteristics for Employment Outcome</td>
<td>66-67</td>
</tr>
<tr>
<td>11. Summary of Logistic Regression Analysis of Public Support and Supported Employment for Employment Outcome</td>
<td>68-69</td>
</tr>
<tr>
<td>12. Percentages of Services Received for Ohio and National Data</td>
<td>74</td>
</tr>
<tr>
<td>13. Percentages for Disability Type from Ohio and National Data</td>
<td>79</td>
</tr>
</tbody>
</table>
CHAPTER ONE

INTRODUCTION

The Rehabilitation Act of 1973 (PL 93-112) provides anti-discrimination protection to ensure people with disabilities are provided the same opportunities to employment and self-sufficiency as the general population. Under this law, federal funding is provided to state vocational rehabilitation (VR) agencies to assist people who have been determined eligible due to one or more disabilities to find or maintain employment in the community through appropriate accommodations, modifications and auxiliary aids (Cozzens, Dowdy, & Smith, 1999; Price-Ellingstad, & Berry, 2000; Rehabilitation Services Administration, 1993). Under the Rehabilitation Act of 1973, eligibility requirements specify that a person must have a severe physical, emotional or cognitive disability that creates substantial barriers to employment.

Once determined eligible through a state VR agency, a person receives numerous valuable services from a rehabilitation counselor with the ultimate goal of employment (Colley & Jamison, 1998; Dunham, Schrader, & Dunham, 2000; Gardner & Scott, 2001; Price-Ellingstad & Berry, 2000). Services may include but are not limited to assessment, career guidance and counseling, university training, on-the-job training, job coaching, job placement services and transportation (Rehabilitation Services Administration, 1995). Services are terminated once employment has been maintained successfully for 90 days resulting in a successful closure or progress toward employment has not been achieved; therefore, resulting in an unsuccessful closure.
In Ohio, the VR agency is called the Ohio Rehabilitation Services Commission (ORSC). Among other things, this agency is responsible for providing employment services to eligible Ohioans with disabilities who are interested in finding competitive employment. ORSC has two bureaus that provide employment services to Ohioans: the Bureau of Vocational Rehabilitation (BVR) and the Bureau of Services for the Visually Impaired (BSVI). Both bureaus offer similar services; however, BVR provides services to Ohioans with any type of severe physical, emotional or cognitive disability that causes a barrier to employment while BSVI specifically works with people who have severe visual impairments or blindness.

As transition-aged youth in secondary school settings enter the last remaining years of school services, adult agencies such as BVR and BSVI are often engaged to assist the student in planning to make this fundamental conversion and prepare for continued service delivery by those adult agencies. Unfortunately, the service provider switch cannot always be seamless. The main reason for this disconnect involves eligibility. The definition of disability for eligibility purposes is different between the Rehabilitation Act of 1973 (PL 93-112) and the Individuals with Disabilities Education Act (PL 101-476). Due to this discrepancy in definitions, a student with a disability receiving special services in high school may not qualify as having a severe enough disability for services through the state VR system (Mellard & Lancaster, 2003). In addition, due to order of selection, an eligible student may still have services delayed through vocational rehabilitation. Order of selection, as outlined in the Rehabilitation Act of 1973, requires that state agencies unable to serve all individuals with disabilities due to
fiscal and personnel constraints must serve persons with the most significant disabilities first (Rehabilitation Services Administration, 1992). People who are categorized as having less severe disabilities are put on a wait list, possibly indefinitely.

School to Work Transition

Based on differences between school and adult services and the unique needs of students leaving secondary school settings, the process for transition-aged youth in the VR system may look different as compared to the adult population. Students still in high school may receive congruent services from both the local school system and the VR agency; however, once a person has graduated or reached the cut off age for school services, school services are terminated while adult vocational rehabilitation services may continue until employment is reached. Generally, students with disabilities are referred in the last couple of years of high school in order to facilitate a continuum of services from school to adult VR. Rehabilitation counselors are then assigned to each student in order to determine eligibility, to write an Individualized Plan for Employment (IPE) and to provide services prior to graduation and exiting the high school system. An IPE must be written prior to graduation as a counterpart to the Individualized Education Program (IEP) created through the school system (Brooke, Green, Revell & Wehman, 2006). Appropriate services, designated in the approved IPE, are determined through the consumer’s stated interests, various assessments, the local labor market, agency policy, and each counselor’s judgment.

Although the transition from school to adult roles is a natural progression of growth and development throughout the school years, VR services support students with
disabilities in the pursuit of their individual transition goals in post school environments. According to Benz, Lindstrom, and Latta (1999), students with disabilities require “innovative, effective and enduring partnerships among a variety of key stakeholders” (p. 55-56). As outlined in the 1997 IDEA amendments to address concerns of student outcomes, schools as service coordinators are required to focus on developing interagency linkages and involving community agencies into the transition planning process (Mellard & Lancaster, 2003). Vocational rehabilitation is a fundamental partner for transition planning into employment for students with disabilities (Wehman, Moon, Everson, Wood & Barcus, 1988; Will, 1984).

Research Findings Supporting Variable Selection

In order to facilitate successful transitioning from school to work, the continual review of the process and understanding of what creates positive outcomes is vital. Identifying predictive variables for adults and youth is key to promoting services that lead to sustained and enhanced success. For this population, it is also necessary to understand the research based on transitional school services students received prior to entering the VR system. Through a convergence of information, a more complete picture helps design VR services that support this movement towards transition goals.

Services and Personal Characteristics

As the major goal of VR is employment, a considerable amount of research has been devoted to identifying predictive variables of employment outcomes such as individual characteristics and services received. Moore, Feist-Price, and Alston (2002) studied adults with mental retardation in the VR system. Of the services explored in this
study, job placement services was a predictor of successful employment while the necessity of transportation and adjustment services were predictors of non-competitive employment at closure. In addition, there was no statistically significant difference in levels of income when the researchers analyzed gender, race, presence of a secondary psychiatric disability, or other specific services (Moore, Feist-Price, & Alston, 2002). In another study conducted by Bolton, Bellini, and Brookings (2000), job placement again was cited as the main predictor of successful outcomes for VR consumers. In the same study, Bolton et al. (2000) also noted that training has predictive value for employment outcomes, especially for consumers with orthopedic disabilities or mental retardation. In contrast, Caston and Watson (1990) reported that consumers in their study who received a vocational evaluation were less likely to be successfully employed than those who did not receive an evaluation.

Although some studies demonstrated that job placement is predictive of successful outcomes, some studies have reported that specific disabilities warrant specific services suggesting that blanketed job placement services is not the answer for persons with varying disabilities. Capella (2003) reported that people with a hearing loss received the services of restoration, assistive technology devices and services, assessment, and personal assistance services at a significantly higher level than people with other disabilities. In addition, those consumers were closed successfully and noncompetitively (homemaker) at a higher rate than other consumers. Finch and Wheaton (1999), when investigating services for adults with serious mental illness, found that people who received counseling while in the VR system were more likely to obtain jobs in which
they received higher wages. In addition, this study demonstrated that the most frequent occupations for this population were service and clerical occupations, which are generally considered lower-waged, entry-level occupations. Rosenthal, Dalton, and Gervey (2007) also investigated people with psychiatric disabilities in the VR system. They concluded that consumers in this population who received job placement and counseling services were more likely to be closed successfully in employment. These studies suggest that a one size fits all model would not work due to the variability between consumers.

In addition to services delivered, many studies investigated personal characteristics of adults with disabilities receiving services from state VR agencies. Gender and race were discussed in the following studies. Bounds, Schopp, Johnstone, Unger and Goldman (2003) found that women with traumatic brain injuries (TBI) were less likely to receive maintenance as a service, although other services were proportionate. Capella (2003) reported that women with hearing loss were more likely to seek services than men. Capella (2003) also concluded that African Americans were served at a lower percentage than Caucasians. A study by Olney and Kennedy (2002) reported that African American consumers, compared to European American and non-African American racial minorities, were more likely to receive job-seeking skills training and on-the-job training but were less likely to receive college or university training. In the same study, all minorities were more likely to receive supported employment services than European American consumers. Overall, African Americans were the least likely to be competitively employed at the termination of services (Olney & Kennedy, 2002) Lower competitive employment rates for African American
consumers were also found by Patterson, Allen, Parnell, Crawford, and Beardall (2000). Based on these studies, gender and race as variables both appear to interact with services delivered and outcomes.

*Transition-aged Youth in VR*

More specifically, there have been some studies that have focused on transition-aged youth in state VR systems. Studies conducted by Rabren, Hall and Brown (2003) and Rabren, Dunn and Chambers (2002) reported that transition-aged youth with specific learning disabilities were more likely to be competitively employed. Both studies also reported that transition-aged male consumers were more likely to be closed successful. In addition, Heal and Rusch (1995) stated that prediction of employment was specific to disability category more so than personal academic and adaptive competencies in students with disabilities. Overall, several studies have demonstrated that transition-aged females of African American or Hispanic decent who have mental retardation were significantly disadvantaged as opposed to white, male students with learning disabilities (Blackorby & Wagner, 1996; Doren & Benz, 1998; Heal & Rusch, 1995). Although some research is published on this population, studies focusing on transition-aged youth in the adult VR systems are sparse and dated when determining predictive variables of successful employment outcomes.

Based on the literature of adults and transition-aged youth in the VR system, there is no clear and definitive plan for successful employment that would cater to each consumer’s needs. Personal characteristics and services provided play an integral role in employment outcomes for these individuals. Although all consumers are unique with
specific strengths, limitations, and interests which require individualized plans of service, research supported the value of further exploring the common characteristics and services provided to individuals with disabilities within the VR system.

*Research on School Services*

Unfortunately, focusing on consumers after they arrive at VR does not take into account the unique school experiences that shape transition-aged youth service needs. Researchers have investigated the role of specific predictor variables for transition-aged youth involved in school services in outcomes of gainful employment after high school. Benz, Lindstrom, and Yovanoff (2000) determined that students who have two or more jobs prior to graduation were almost twice as likely to be employed or go on to further training at exit of school services than those who had fewer than two jobs while in their program. Rabren, Dunn, and Chamber (2002) reported that students with disabilities who were employed at exit of school services were 3.8 times more likely to be employed one year after high school than those students with disabilities who were not employed at exit. In addition, Fabian (2007) examined a program called Bridges that worked with urban minority students with disabilities. Although limited by the student self selected nature of the program, her study determined that males and those with prior paid employment experiences were more likely to be employed at the end of the program. These studies suggest that in order to improve employment outcomes after high school, it is helpful for employment experiences to start during high school.

Through existing research, much is known about outcomes of people within the VR system. Several studies demonstrate that disability, race and gender have an impact
on not only services provided but on employment outcomes in the VR system (Bounds, Schopp, Johnstone, Unger & Goldman, 2003; Capella, 2003; Olney & Kennedy, 2002; Patterson, Allen, Parnell, Crawford, & Beardall, 2000). Services provided to consumers studied independently have predictive value for employment outcomes ((Moore, Feist-Price, & Alston, 2002; Bolton, Bellini, & Brookings, 2000; Caston & Watson, 1990). In addition, transition-aged youth who received services prior to leaving high school and the school-based services and experiences of this population constitute a uniquely different population in the VR system (Heal & Rusch, 1995; Blackorby & Wagner, 1996; Doren & Benz, 1998; Benz, Lindstrom, & Yovanoff, 2000; Rabren, Dunn, & Chamber, 2002). This specific population, transition-aged youth, should therefore be studied to determine its own unique predictive variables.

Since the 1960’s, rehabilitation counselors and school personnel collaborated with each other and provided transition services vital for post school success in employment and community living. There exists a significant body of promising practices for students making the transition from school to work. The use of that knowledge within the framework of vocational rehabilitation is less understood than application at the secondary level. This study attempts to further professional knowledge of promising practices for transition-aged youth with disabilities within the adult VR system by paving the way for joint rehabilitation and special education practices that serve transition-aged individuals in the VR system.
Statement of the Problem

What can be learned from studying outcomes of individuals in the VR system? Disability-specific considerations and personal characteristics, in conjunction with provided VR services, can create a better road map when working with people on employment outcomes. However, simply applying the current knowledge based on school services and adult consumer outcomes to the unique population of transition-aged youth does not appear to be sufficient. Unfortunately, there is still very little research that discusses the issue of youth in the VR system. There remains a major discrepancy in employment outcomes for transition-aged youth with disabilities after high school as compared to students without disabilities despite transition programs in schools and post school transition services. Nationally, students with mental retardation or multiple disabilities are the least likely to be working or to have graduated with a diploma prior to age 21 (Wagner, Newman, Cameto, Garza, & Levine, 2005). As postsecondary education has become very popular and more accessible in recent decades, it is possible that these students are going to college instead of obtaining employment. Students in Ohio with low-incidence disabilities were found to be considering postsecondary education at unprecedented rates (Baer et al., 2003), which mirrors a national trend (Stodden & Whelley, 2004). However, post-secondary enrollment for students without disabilities is still twice as high as peers with disabilities, according to the second National Longitudinal Transition Study (NLTS-2, 2005). It is clear more can be done to decrease the gap between the outcomes of students with and without disabilities.
To this end, state vocational rehabilitation services were designed to increase employment outcomes of all people with disabilities through federal grants provided by the Rehabilitation Act of 1973 (PL 93-112). A continuation of needed transition services from school to adult service agencies is achieved through the completion of an Individualized Plan for Employment prior to graduation for students with disabilities (Brooke, Green, Revell, & Wehman, 2006). Additional study of outcomes and predictors of characteristics of students and services provided may point to policies and practices that enhance VR service delivery. Based on the success of studies utilizing the RSA-911 data file (Wilson, 1999, 2002, 2004; Whitney, Timmons, Gilmore, & Thomas, 1999; Gilmore, Schuster, Timmons, & Butterworth, 2000; Wheaton & Hertzfeld, 2002; Moore, Alston, Donnell, & Hollis, 2003; Paugh, 2003, Rosenthal, et al, 2007), the current study has been designed to investigate some of these unanswered questions.

The Purpose of the Study

This study investigated transition-aged individuals with disabilities served by the Ohio vocational rehabilitation system. It was imperative to determine what the specific employment outcomes were for transition-aged individuals, what types of services they received through their rehabilitation plans, and the degree to which those services predicted plan outcomes. Types of services included: assessment, diagnosis and treatment of impairment, vocational rehabilitation counseling and guidance, college or university training, occupation/vocational training, on-the-job training, basic academic remedial or literary training, job readiness training, augmentative skills training, miscellaneous training, job search assistance, job placement assistance, on-the-job supports,
transportation services, maintenance, rehabilitation technology, reader services, interpreter services, personal attendant services, technical assistance services, information and referral services and other services (RSA, 2004). Identifying specific services that these individuals received will clarify the picture of transition practices in VR and their relationship with employment outcomes. In addition, this project was designed to address individual personal characteristics that may have had an impact on services provided or outcomes. Within the transition-aged population, disability type, gender, and race/ethnicity may have played an important role in receiving specific services. Those characteristics or difference in services delivered may impact employment outcomes, as demonstrated in research already discussed, affirming that the probability of interference must be investigated. Through a more refined categorization of the larger transition-aged population, predictor variables can be more appropriately established and promising practices outlined.

Interestingly, the possibility of public support (i.e. Supplemental Security Income and general assistance) and supported employment services having an effect on transition-aged youth outcomes is also consistent with current literature. Schuster, Timmons, and Moloney (2003) reported that transition-aged beneficiaries of Supplemental Security Income (SSI) had three unique barriers to employment: difficulties managing the receipt of SSI, limited understanding of the relationship between SSI and work, and unawareness about supports offered by the Social Security Administration (SSA). According to several studies (Stapleton & Erickson, 2004; Berry, 2000; Rosenthal, et al., 2007), SSI recipients are more likely to attain lower employment
and income outcomes when compared to other VR consumers. A study conducted by Fabian in 2007 determined that urban minority students with disabilities who were receiving SSI were less likely to be employed than those not receiving SSI. This may be due to the correlation between level of functioning and eligibility for SSI benefits.

Another aspect for populations considered to be more significantly disabled and thus requiring more intensive supports while on the job is supported employment services. Research has consistently suggested that supported employment is effective for providing support required in the community and at the worksite for individuals with disabilities, according to Wehman, Sale, and Parent (1992). Bond (2004) states that, based on several evidence-based research studies, supported employment has been effectively used with people with severe mental illnesses. In addition, Wehman and Revell (1997) report that supported employment is congruent with the special education practices of functional curriculum, community-based work experiences and full inclusion for integrated learning settings utilized when working with students with disabilities. This research indicates that supported employment may be beneficial to students with disabilities and therefore have predictive value.

The identification of predictor variables related to successful outcomes could guide future studies in an effort to further determine policy and promising practices to shape the VR system. Productive employment might then be fostered through more appropriate services. Conversely, if more is known about what leads to unsuccessful closures, populations at greater risk for unsuccessful closure can be targeted for more intensive services or more specialized services, as personal characteristic variables cannot
be changed. In summary, improving outcomes can be accomplished through careful evaluation and identification of predictor variables.

Research Questions

1. What are the characteristics, services and post-school employment outcomes of transition-aged individuals with disabilities served in the Ohio vocational rehabilitation system?

2. What characteristics of students (disability, gender, and race/ethnicity) and VR services predict employment post-school outcomes and successful closure?

Based on different characteristics of students (such as disability type, gender, and race/ethnicity), the study identified what VR services were received by transition-aged individuals with disabilities. Further analysis was done to determine which services for these groups predicted positive outcomes for transition-aged individuals with disabilities in the Ohio VR system. Additional secondary analysis was done for students receiving public support prior to services and employment outcomes, as well as, students participating in supported employment and outcomes.
CHAPTER TWO
REVIEW OF LITERATURE

Chapter two reviews the pertinent literature as it relates to the topic of transition-aged individuals receiving vocational rehabilitation services. Related empirical studies will be summarized, as well as the history and legislative background of transitional services. In addition, a brief overview of the Individuals with Disabilities Education Act of 1990 and transitional models and promising practices will follow. Implementation of transition practices through the rehabilitation model will conclude this chapter.

Background on Policy and Practices

Although the definition of transition can be as broad as any period of change in one’s life, for the purposes of this discussion, transition is narrowed to the period from the high school student role into the adult world of employment for youth with disabilities. As defined by the U.S. Office of Special Education and Rehabilitation Services (OSERS), “transition is an outcome-oriented process encompassing a broad array of services and experiences that lead to employment” (Will, 1984, p. 1).

These definitions were elaborated through the Individuals with Disabilities Education Act (IDEA) of 1990 (PL 101-476).

The term “transition services” means a coordinated set of activities for a student with a disability that: (A) is designed within an outcome-oriented process, that promotes movement from school to post-school activities, including post-secondary education, vocational training, integrated employment (including supported employment), continuing and adult education, adult services,
independent living, or community participation; (B) is based on the individual student’s needs, taking into account the student’s preferences and interests; and (C) includes instruction, related services, community experiences, the development of employment and other post-school objectives, and, when appropriate, acquisition of daily living skills and functional vocational education (Section 300.18).

Although the concept of transition services and planning may appear straightforward and easily achieved, it may become complicated when the ease of one-stop shopping with special education services is replace by a multitude of adult service agencies (Baer, McMahan, & Flexer, 2004). Therefore the concept of transition planning evolved into a step-by-step process to meet transition goals (Flexer, Baer, Luft & Simmons, 2008). Through transition planning, professionals, families, and the student can evaluate post-high school goals and determine what pre-employment steps need to be completed to make the transition successful.

Through the IDEA of 1990 and its subsequent amendments in 1997 and 2004, four essential elements outline the process of transition planning. These elements are as follows: (1) based on student needs, interests, preferences, and strengths; (2) developed through an outcome- and results-oriented process; (3) a coordinated set of activities across student environments; and (4) designed to promote student movement to postschool activities (Flexer, Baer, Luft, & Simmons, 2008). The concepts behind the four essential elements will be discussed further when deconstructing the vocational rehabilitation process for transition-aged youth.
Legislative Background

The dramatic disparity in definitions and services over the past couple of decades were the result of a century of rehabilitation and transition-focused educational legislation. Although all legislative pieces have played a role in the evolution of current policy, there have been several foundational laws that have risen to distinction. Influential laws, including the Rehabilitation Act of 1973, the Individuals with Disabilities Education Act of 1990 and the Americans with Disabilities Act of 1990, will be highlighted in this section as they relate to transition aged youth.

The first piece of legislation to shape transitional employment services was the passing of the Vocational Education Act. The Vocational Education Act was established in 1963 and amended in 1968 and 1976. The concept was that youth with and without disabilities should be integrated in vocational education programs. The 1968 amendment required that individual states allocate 10% of federal vocational program funding to be used specifically for youth and adults with disabilities (Rusch & Phelps, 1987; Fardig, Algozzine, Schwartz, Hensel, & Westling, 1985). As described, this law began to decrease the divide between children with and without disabilities.

By the 1970’s, the civil rights movement extended to people with disabilities through the Rehabilitation Act of 1973. This law was written to protect people with disabilities from discrimination in programs and activities receiving any type of federal funding (Henderson, 2001). Employers covered under this law are required to affirmatively hire and promote people with disabilities within their companies. This law also requires that state vocational rehabilitation programs write “individualized written
rehabilitation programs” (IWRP), currently called an Individualized Plan for Employment (IPE), for those being served. In addition, this law requires state agencies to improve services through client choice and involvement, as well as, to structure services based on an ecological view of all needs due to the disability (Rusch & Phelps, 1987; Francis & Silvers, 2000). Students with disabilities under this law are entitled to receive an education with evaluations and services comparable to students without disabilities in the regular education classroom when that environment is able to meet the needs of the student (Turnbull, 1993).

In addition to the Rehabilitation Act, the Education for All Handicapped Children Act of 1975 (P.L. 94-142) required that all children (ages 3-21) with disabilities receive a free and appropriate education (FAPE) in the least restrictive environment (LRE). Gajar, Goodman, and McAfee (1993) suggested that this act was the culmination of all of the efforts of previous years to close the gap between students with and without disabilities. This law required teachers to create an “individualized education program” (IEP) for special education students. This law also discussed the importance of community and employment activities which can be a part of an appropriate education for high school students in special education (Halpern, 1992). According to Sitlington and Clark (2006), this law outlined consequences for noncompliance of the FAPE rule through the ability to pull federal funding from the states. The subsequent amendments to this law, designed to coordinate school services for students transitioning into further training, work, and adult services (Rusch & Phelps, 1987), have gone on to further define and expand transition for students with disabilities. Many changes were made including the addition of
employment goals and a more in depth assessment of the student (needs, interests and abilities) in the IEP, vocational training in the least restrictive environment, awareness of the vocational training at least one year prior to entrance into options, and reporting the number of students with disabilities in those vocational training programs (Gajar, Goodman, & McAffe, 1993; Snauwaert, 1992; Levinson, 1998).

The 1980’s also ushered in legislation specifically beneficial to the transition-aged population. The Carl D. Perkins Vocational and Technical Education Act established in 1984 extended the Vocational Education Act of 1963. This new act required that students with disabilities receive assessment, support services, counseling, and transition services (Rusch & Phelps, 1987). The Rehabilitation Act Amendments of 1986 improved client rights and supported employment opportunities (Wehman, 1992). Both acts were influential then quickly became overshadowed by legislation created in the 1990’s.

The 1990’s began on an excellent note for both students and adults with disabilities through the passing of the IDEA (Individuals with Disabilities Education Act) and the ADA (Americans with Disabilities Act). The Individuals with Disabilities Education Act of 1990 (IDEA), a reauthorization of the Education for the Handicapped Act (EHA), was a culmination of previous school legislation. In this reauthorization, those served were now referred to as children with disabilities who were entitled to an Individualized Education Program (IEP) that addressed transitional needs by the age of 16 (Wehman, 1992). This law also provided a definition of transition resulting in services that were to be based on the student’s needs and preferences, outcome-oriented through a coordinated set of activities, and designed to promote movement to postschool activities
(PL 101-476). This law also guarantees a free and appropriate education for students with disabilities (Brotherson, Cook, Cunconan-Lahr, & Wehmeyer, 1995). In some form, these themes can all be seen running through transition models. IDEA is the first piece of legislation to define and require transitional services for students with disabilities.

In the same landmark year, the American with Disabilities Act of 1990 was established as a comprehensive civil rights law for protection against discrimination of employment, public services, and accommodations based on disability (Henderson, 2001; Shapiro, 1994; Szymanski & Parker, 1996). This act extends protections of people with disabilities to employers, public entities, and private entities providing services. This law requires all employers and service providers to provide reasonable accommodations to persons with disabilities in order to participate in employment or services. This would protect students in private schools or at a work site for community-based training from discrimination (Henderson, 2001). In addition, this law focuses on self-determination, or the ability to choose one’s own path (Brotherson, Cook, Cunconan-Lahr, & Wehmeyer, 1995).

The Rehabilitation Act Amendments of 1992 (PL 102-569) maintained the special education, self-determination and inclusion movements. Economic self-sufficiency, independence, and integration into society were the mainstay for these amendments (Sitlington & Clark, 2006). Although mentioned several times previously in legislation, there still remained a gully between services provided by vocational rehabilitation and special education. These amendments specifically required cooperative planning in an effort to decrease the gap where students were still not receiving vital services from either
VR or special education. It is important to note that the Rehabilitation Act and the IDEA share the same definition of transition bringing agreement to both fields for the transition population (Szymanski & Parker, 1996).

The Individual with Disabilities Education Act was then amended in 1997. It now required students with disabilities to engage in general education curriculum and be assessed through large-scale assessments (Lehman, Cobb, & Tochterman, 2001). In addition, a statement of transition needs was to be created for all students at age 14 which was to lead to the planning of high school courses that align with the student’s postschool goals (Flexer, et al., 2008). However, this age requirement was moved back to age 16 with the amendments of 2004. As well, the language of IDEA of 2004 changed to place the focus back on coursework to improve academic and functional skills for students with severe disabilities (Flexer, et al, 2008).

The rehabilitation and transition legislation of the past century has transformed the mission statements and services of transition-aged youth with disabilities. Through legislation and social movements, employment-related transition service for youth with disabilities has been brought to the forefront for educational institutions and rehabilitation agencies. Now transition-aged youth are protected under disability, civil rights and educational legislation in order to establish the needed services for these individuals to reach a higher level of self-sufficiency.

Transition Models and Promising Practices

The same social movement that created legislation formulated around employment for youth and adults with disabilities also established models and promising
practices. Many transition models and promising practices emerged to guide professionals working with transition-aged youth that coincided with the current vocational rehabilitation process. While both systems appear very different, both the school system and the rehabilitation process have a shared framework for services based on assessment, planning, and service delivery or instruction (Stodden & Leake, 1994; Rubin & Roessler, 2001). In addition to defining, this section will also review how the models and promising practices can fit into the rehabilitation services model for transition-aged youth.

Transition models began to emerge in the 1960’s (Halpern, 1992). The most influential model of the decade was the work-study model that required a cooperative agreement between schools and rehabilitation agencies and shaped an appropriate work experience to be added to the curriculum for students with less severe disabilities (Halpern, 1992). Occupational preparation, generalized work training, job tryouts, occupational training, skill training, employer preparation, identification of work models, field trips, and transitional work-experience could be incorporated to create a career foundation needed by students with disabilities (Peck, 1966). Vocational instruction, community experiences, and interagency linkages were the hallmarks of the work study model. Community employment was pulled into school curriculum and rehabilitation counselors became partners with the schools to which they were assigned (Whetstone & Browning, 2002).

While the 1970’s experienced a decline of the work study model, it gave way to the rise of a new transition model: career education. Career education was designed to
meet the needs of all students through identification of goals and needed skills, as well as pertinent training (Stodden & Leake, 1994). The main goals of career education, according to Hoyt (1987), were: (1) to help persons in career awareness, career exploration, and decision-making; (2) to equip persons with general employability and adaptability skills; (3) to promote and implement private sector and public school system partnerships; (4) to interface education and work so that the student may make better choices; (5) to reform education by infusing a “careers” emphasis in academic classrooms; (6) to make work a meaningful part of the individual’s life; and (7) to protect freedom of choice by reducing prejudice and stereotyping. Unfortunately, as the Career Education Implementation Incentive Act of 1977 was repealed in 1982, there would be no funding to sustain this type of program although the concept is still utilized by educators today (Whetstone & Browning, 2002).

As a consequence to these efforts, leaders in the 1980’s took early concepts of transition and created models emphasizing the need for services in integrated settings (Will, 1984). Will proposed the Bridges Model to identify levels of services needed for a successful transition into adult roles. The three levels of service included: no special services, time-limited services, and on-going services (Will, 1984). A parallel to rehabilitation would include: no rehabilitation services, vocational rehabilitation, and supported employment. Halpern (1985) extended Will’s definition of transition to embrace community adjustment. Community adjustment was broken into three outcomes: employment, residential, and social and interpersonal networks (Chadsey-Rusch, Rusch,
& O’Reilly, 1991). By 1989, Halpern went on to suggest that community adjustment
would be improved through self-determination or identification of interests and goals.

Another model to follow was Wehman's three-stage vocational transition model
(Wehman, Kregel, & Barcus, 1985). The process defined how students would transition
out of high school. Wehman’s process for transition began several years prior to
graduation and lasted through the first or second year after leaving the school system
(Kohler, 1996). Wehman’s model also highlighted the collaboration between the school’s
special education, the state’s rehabilitation services, and vocational education (Flexer et
al., 2008).

Transition models, such as those developed by Will and Wehman, extended
legislation to transition ideals. Therefore, many previous models were adjusted to fit
these transition ideals and research. Halpern (1993), based on a new theoretical model of
quality of life, suggested that transition outcomes be evaluated by new outcome domains
(Kohler, 1996). Domains would now include: physical and material well-being (physical
and mental health; food, clothing and lodging; financial security; and safety from harm),
the performance of adult roles (mobility and community access; vocation, career and
employment; leisure and recreation; personal and social networks; educational
attainment; spiritual fulfillment; citizenship and social responsibility), and personal
fulfillment (happiness; satisfaction and a sense of general well-being) (Halpern, 1993, p.
491). Halpern’s Quality-of-Life was an expansion of the transition model which
included personal factors involved in life satisfaction.
Brolin (1995) expounded on Will’s model to spread transition to: students beginning as early as elementary school, integrated living, and social activities (Whetstone & Browning, 2002). Other aspects of the model included: interagency cooperation, individual planning, employer incentives, supported employment, functional career curriculum, collaboration between employers, agencies and parents, and a post-secondary support and follow-up system (Brolin, 1995, pp. 207).

The final model for the 90’s came from Paula Kohler in 1996. The Taxonomy of Transition Planning results from the concept that all possible adult roles must be considered (Johnson, 2002). Kohler’s model mentions several effective practices: student-focused planning, student development, interagency and interdisciplinary collaboration, family involvement, and program structure and attributes (Sitlington & Clark, 2006; Rusch and Chadsey, 1998). As research and services evolve in the current decade, professionals are continually creating new models to enhance the transitional step from student to adult roles for students with disabilities (Certo & Luecking, 2006).

Concurrent to model development, many promising practices have been created to help practitioners in the field. To initiate a discussion of best practices, it is important to distinguish between what is suggested and what is supported with evidence or research. Many practices have been created based on recommendations from researchers (Sitlington & Clark, 2006). Some of these recommendations include: vocational assessment and vocational training, social skills and employability skills training, academic skills training, parent involvement, paid work experiences, integrated and community –based instruction, and interagency collaboration (e.g., Banks & Renzaglia,
Themes reported by Flexer, et. al. (2008, pp. 15), include: student self determination, ecological approaches, individualized backwards planning, service coordination, community experiences, access and accommodation technologies, supports for postsecondary education, and family involvement. However, Kohler (1993) only identified four research-supported promising practices: parent involvement, vocational training, paid work, and social skills training. Unfortunately, documentation is lacking when researching explicit best practices that help transition-aged youth into the community (Greene & Albright, 1995; Kohler, 1993).

With the introduction and refinement of several pieces of legislation aimed at improving the services and outcomes of transition-aged youth with disabilities, leaders in the field developed various models and promising practices for working with this population. Employment related models still utilized today to move transition youth from student to worker include work-study, career education, Will’s Bridges Model, and Wehman’s three-stage vocational transition model. In collaboration with models, several promising practices have been linked to successful transition to adult roles although few have been supported through research. Key elements derived from models and practices include various interest and skills assessments, employability and specific job training, and community work experiences.

Role of Rehabilitation in Transition

Both school and adult VR converge on three main components in the transition process: assessment, planning, and service delivery. As in school systems, assessments in
VR can take many forms based on the student and his or her needs. Assessments include: psychological evaluations, physical evaluations, academic evaluations, work skills assessments, and work behavior assessments. Bordieri and Thomas (1986) reported that vocational evaluation was the most frequently used service for the vocational rehabilitation process in state agencies. As defined by Gellman (1980), a work evaluation is completed to predict ability to work, vocational objectives, and training required to secure employment. Unfortunately, Caston and Watson (1990) conducted a study that reported that people in the VR system who had received a vocational evaluation were more likely to be closed unsuccessful which may be a result of level of disability for people needing to be referred for this type of assessment.

In addition to assessment, both systems have a solid foundation in planning and collaborative efforts. Through the Individualized Education Program (IEP) and the Individualized Plan for Employment (IPE), students are involved and aware of the needs to be addressed and the services that will address those specific needs. These plans are created through the collaboration of all parties, including schools, families, students with disabilities, and adult agencies. These plans also are intended to create a continuation and smooth transition of services after high school. A smooth transition is ensured through the federal mandate stating that the rehabilitation plan from the state VR agency must be created and signed prior to graduation for all students determined eligible for services (Brooke, Green, Revell & Wehman, 2006).

The final piece is service delivery which often occurs in the community for transition-aged youth in the vocational rehabilitation system. Services may include but
are not limited to: vocational or postsecondary education training, on-the-job training, job coaching, transportation, job development and placement, retention services (RSA, 2004). Some services such as specific instructional strategies and job placement have already been established in research as possible promising practices. Community-based instruction (CBI) has been cited as a requirement for students with disabilities who will have difficulty generalizing from the classroom to post-school settings (McAfee & Greenawalt, 2001). In addition, several studies have demonstrated that job placement is significantly linked to successful rehabilitation (Moore, Feist-Price, & Alston, 2002; Bolton, Bellini, & Brookings, 2000). Other services are not significantly linked to successful vocational rehabilitation outcomes through current research.

As a quick comparison to the essential elements of transition outlined by Flexer, et al. (2008), the similarities to the rehabilitation process are as follows:

1) Individualization and student/client involvement. This is controlled through informed choice and a comprehensive assessment required to be completed prior to writing the IPE (Rubin & Roessler, 2001).

2) Outcome orientation. Prior to writing a plan, each rehabilitation case must have an employment goal for the consumer to be progressing towards (Rubin & Roessler, 2001). This concept is a reflection of Hershenson and Szymanski’s Occupational Choice Theory (1992).

3) Coordinated set of activities. Vocational rehabilitation counselors are expected to coordinate all agency involvement to ensure appropriate client services (Rubin, et al., 1984; Rubin & Roeslller, 2001).
4) Relation of goals to services. All services listed on the IPE are services required by the individual to reach the previously stated employment goal whether the vocational rehabilitation agency is providing that service or not (Mellard & Lancaster, 2003).

Since there are similarities between the transition services in school systems and in the rehabilitation process in assessment, planning and service delivery, research that can be generalized to some extent over both systems can inform practice in both.

Related Empirical Studies

While current legislation and promising practices focused on making transition to employment a reality for students with disabilities, empirical research on what extent unemployment and underemployment are being addressed by transition services is needed. As the nation has focused on this issue, several studies in the past decade that investigated the employment outcomes of students with disabilities post-graduation were identified (Benz, Lindstrom, & Yovanoff, 2000; Rabren, Hall, & Brown, 2003). Many studies examined personal characteristics and experiences in relation to the employment outcomes of transitioning youth (Blackorby & Wagner, 1996; Doren & Benz, 1998; Heal & Rusch, 1995; Schaller, Yang, & Trainor, 2006). Other studies focused on functional skills and any correlation observed with successful employment outcomes (Heal & Rusch, 1995; Rylance, 1998). In addition, some researchers focused on social skill attainment as an influence in employment outcomes (Benz, Yoanoff, & Doren, 1997; Black & Langone, 1997; Black & Rojewski, 1998).

One specific study that focused on transition-aged youth in the VR system examined consumers with Attention Deficit Hyperactivity Disorder (ADHD). Schaller,
Yang, and Trainor (2006) studied 1,687 White individuals with ADHD aged 18 to 25 exiting from the VR system in the year 2002 after having an IPE implemented. Data was collected from the RSA-911 datafile compiled from all states. Based on personal characteristics and services, several predictor variables were determined for males with ADHD including age, vocational rehabilitation counseling, job search assistance, and job placement assistance. It is interesting to note that rate of successful outcomes was positively correlated with age of male participants. For females in the study, the only predictive variable identified was job search assistance. However, results from this study are difficult to generalize due to homogeneity in race/ethnicity and the use of such a specific disability population.

In another study, Rabren, Hall, & Brown (2003) examined demographic and programmatic variables in an effort to predict employment for transition students in the rehabilitation system. This study included 599 former special education students with disabilities involved with the Department of Rehabilitation Services (DRS), a vocational rehabilitation agency in a southeastern state. Student variables included: gender, disability type (learning disabled or non-learning disabled), race (Caucasian or non-Caucasian), and county population (rural or urban). Programmatic variables included: hours outside the general education classroom, diploma exit status, age at DRS application date, school grade at DRS application date, and grade difference at DRS application date. Of those variables examined using logistical regression analysis, gender and disability type were significant predictors of employment. This study demonstrated that males ($\beta = 0.74, p < 0.001$) and persons with learning disabilities ($\beta = 0.53, p <$
0.05) are significantly related to successful outcomes. In combination, gender ($\beta = 1.18, p < 0.01$) and hours outside of general education classroom ($\beta = -1.15, p < 0.05$) were significant for prediction of employment at case closure.

A third study (Benz, Lindstrom, & Yovanoff, 2000) examined student and program characteristics in prediction of placement into employment. In this study, 917 students who had graduated prior to the 1998-99 school year were included in the database for analysis. Personal characteristics, school program services, and outcomes (employment or postsecondary education) were all variables entered for the two year post-graduation follow along. Employing logistical regression, Benz et al. (2000) reported that students were almost twice as likely to be engaged in work or postsecondary schooling if, during the school program, they held two or more jobs as compared to students who held less than two jobs during the program’s time frame.

Fabian (2007) further analyzed work experience prior to leaving high school in a study focusing on urban minority students with disabilities in the Marriott Foundation’s Bridges from School to Work Program from 2000-2005. Of the 4,571 students participating in the study, 68% of students did obtain employment. Based on logistic regression, Fabian determined that males and students with prior paid work experiences were more likely to find employment. In addition, SSI recipients were less likely to find employment than those without SSI benefits which is congruent with current research for adults. However, students self selected to enter this program which may have affected the student representation and generalizability of results. Unfortunately, none of these three studies investigated post high school services.
Beyond transition aged youth, studies were also conducted pertaining to adults with disabilities in the vocational rehabilitation system and predictor variables for successful employment outcomes. The first study involved 4,603 individuals in the Arkansas Rehabilitation Service from 1992-1997 (Bolton, Bellini, & Brookings, 2000). For these participants, four variables were identified and analyzed: personal history, functional capacities and limitations, rehabilitation services, and the dependent variable of employment outcomes. Through hierarchical multiple regression, the rehabilitation service of job placement was identified as most significantly correlated (.50) with successful employment outcomes though there was no effect on employment wage. The second variable with predictive value was personal history (which includes personal characteristics such as age and family income at referral). Therefore, their variables should be pertinent to the transition-aged population as well.

The second study on the adult population, conducted by Moore, Feist-Price, and Alston (2002), investigated similar variables for persons with mental retardation in a mid-western state VR system. The total population was 838 consumers with mild to moderate mental retardation who may or may not have had a secondary psychiatric disability of which a random sample of 253 cases were selected. Logistical regression and multiple linear regression were initiated to investigate gender, race, secondary psychiatric disability, rehabilitation services and rehabilitation outcome. Out of all variables, job placement was the only variable that had predictive value in achieving competitive employment.
Moore (2002) also investigated characteristics and services of Deaf consumers in the VR system to identify predictor variables. For this population, Moore discovered that gender, college and university training, business and vocational training and job placement were also significant predictors of income. Males and consumers who received the above three services were all more likely to have higher levels of income for this population (Moore, 2002).

In contrast, consumers with psychiatric disabilities were investigated in a study by Rosenthal, Dalton and Gervey (2007). Rosenthal and colleagues used a data mining approach to analyze data from the RSA-911 database with the assistance of an exhaustive CHAID analysis which created classification trees. From these classification trees, data from homogeneous groups of people was identified and explored. Results indicated that job placement was the leading predictor of successful employment at case closure (67.64% employed with job placement services to 38% employed without job placement services). In contrast, this study demonstrated that consumers who did receive transportation services, SSI or SSDI, and counseling but not job placement were most likely to be unemployed (Rosenthal, et al., 2007). The results of this study are parallel to the study by Chan, Cheing, Chan, Rosenthal, and Chronister (2006) that analyzed consumers with orthopedic impairments in a study utilizing the same data mining approach. This study determined people with orthopedic impairments were also more likely to be closed successful if job placement services were provided (75% successful closure rate compared to 51% in consumers who did not receive job placement). Interestingly, this study also reported that consumers who received public support
through SSI, SSDI or general assistance were less likely to become employed (Chan, Cheing, Chan, Rosenthal, & Chronister, 2006).

In addition to services provided, gender was investigated in a study by Rucker, Rice, Lustig, and Strauser (2003). In this study, VR consumers in the Tennessee state VR agency were called to complete a satisfaction survey in order to determine whether consumer involvement impacted employment outcomes. Of the possible participants, 3,239 or 52.6% of people closed between the years 1996-1998 agreed to complete the survey. Results from the survey indicated female consumers felt more involved in the rehabilitation planning process while males reported higher levels of employment (Rucker, Rice, Lustig, & Strauser, 2003). Although consumer involvement may play an integral part in outcomes, due to the ambiguity in defining consumer involvement and the self report of willing consumers without triangulation, this study is very limited in validity and generalizability.

Gender differences were also examined when Bounds, Schopp, Johnstone, Unger and Goldman (2003) investigated 78 state VR clients with traumatic brain injuries (TBIs). Within this study, the only difference in service occurrence between genders was a higher incidence of maintenance for males than females. Males were also closed successful at a higher percentage rate than females. However, with only one female being closed successful and the low number of subjects for the entire study, this study is limited due to limited participants in drawing conclusions from the results of these specific research questions.
Cases of consumers with TBI’s were also reviewed in conjunction with race/ethnicity. Cardoso, Romero, Chan, Dutta, and Rahimi, (2007) analyzed Hispanic consumers with TBI’s. In their study, consumers coded as white were more likely to be closed employed than those coded as Hispanic. Services were analyzed as well citing that positive employment outcomes increased with job placement and on-the-job support services. However, Hispanic consumers were less likely to receive those on-the-job supports when compared to white consumers (Cardoso, et al., 2007). These results coincided with a study conducted by Catalano, Pereirab, Wuc, Hod and Chane (2006) that found lower rates of employment for all minority populations with TBI’s. This study also found that job search, job placement and on-the-job supports were all predictive of successful employment outcomes while work disincentives such as SSI benefits had predictive value for unsuccessful case closure (Catalano, et al., 2006).

In contrast, Johnstone, Mount, Gaines, Goldfader, Bounds, and Pitts (2003) found very different results when studying African Americans with TBI’s in the VR system. In fact, Johnstone et. al. (2003) determined there was no significant difference in vocational outcomes when comparing African American and white clients with African American (AA) consumers having a slightly higher rehabilitation rate (23% for AA to 18% for white). The only difference noted was that African American consumers received transportation more often (Johnstone, et. al., 2003).

Also focusing on race, Bellini (2002) studied the multicultural competency of VR counselors. Bellini (2003) developed a study that examined 155 predominantly white VR counselors (83.2%) in a northeastern state. Through the Multicultural Counseling
Inventory and case documentation, Bellini determined that European American (white) counselors were more likely than minority counselors to have successful outcomes while white consumers were more likely to be rehabilitated at case closure than Hispanic or African American consumers. In addition, white consumers served by white counselors were most likely to be successfully rehabilitated while minority consumers served by minority counselors were the most likely to be closed unsuccessful (Bellini, 2003). In addition, minority counselors were more likely to provide vocational training to all racial groups than white counselors. The author’s caution for further study is warranted as this research coincides with some of the conflicting literature on the effects of race/ethnicity on VR services and outcomes.

Although the reviewed literature is framed around the personal characteristics and services provided to persons in the VR system, the concepts of public support and supported employment services have developed as potential influences in outcomes of VR consumers. Due to the possible impact on transition-aged youth, both variables have been further researched and included. For those receiving SSI (a common form of public support for disability populations) in the adult population, SSI does appear to have a negative impact on employment outcomes (Stapleton & Erickson, 2004; Berry, 2000; Bond, Xie, & Drake, 2007; Rosenthal, Dalton, & Gervay, 2007; Chan, Cheing, Chan, Rosenthal, & Chronister, 2006.). In a study by Stapleton and Erickson (2007), the percentage difference in competitive closure at the end of a VR case from non-beneficiary participants to beneficiary participants was 84% to 59%, respectively.
In a study of young adults, Berry (2000) investigated consumers with SSI benefits ages 18-29 at time of the study. Berry’s study utilized the results from the National Health Interview Survey on Disability Phase 1 and Phase 2, a follow up. Based on the surveys collected in 1994-1995, 93% of non-SSI recipients reported obtaining at least one job prior to the study as compared to only 66% of SSI recipients. Collectively, these studies of both adult and transitional youth populations demonstrated the rate of employment disparity between SSI and non-SSI recipients still existed for people in the VR systems further supporting the addition of public support to this study.

In contrast to the bleak research findings for SSI recipients, supported employment has been utilized when working with people with severe mental illness and mental retardation for a significant amount of time with generally positive outcomes in employment often with mixed results. Mueser, et al. (2004) investigated employment outcomes for participants in a supported employment program for people with severe mental illnesses. In this study, people involved in the supported employment program (Individual Placement and Support) were more likely to be competitively employed (74%) compared to people in psychosocial rehabilitation programs (18%) and people in standard VR programs (27%) (Mueser, et al., 2004). Interestingly, some of the same authors determined in a different evaluation of the same group that people diagnosed with post-traumatic stress disorder (PTSD) did worse in supported employment programs than people with PTSD in other vocational programs (Mueser, Essock, Haines, Wolfe, & Xie, 2004). Between these two studies, it was demonstrated that although supported
employment is highly beneficial for consumers with severe mental illnesses in general, consumers with PTSD did not find employment utilizing one approach over another.

Similarly, a literature review completed by Wehman, Targett, Yasuda, McManus, and Briel (2007) maintained supported employment was also beneficial for minority persons with TBI based on several decades of work and demonstration projects. However, the review was not able to identify consistent differences between minority and nonminority closure rates for people with TBI in supported employment programs.

Bond, et al. studied (2007) outcome differences between two different types of supported employment models for people with severe mental illnesses through interviews of 194 participants. The first model, Individual Placement and Support (IPS) that is often the most utilized model for this population, focused on immediate competitive employment while the second model, Diversified Placement Approach (DPA), referred to the work readiness approach. In the DPA program, as a person gains more experience and success through prevocational training and transitional employment, he or she moved into more independent and competitive employment settings (Bond, et al., 2007). Based on this study, 75% of the participants in the IPS model gained competitive employment while only 34% in the DPA group were competitively employed. It is important to note, however, when reviewing paid employment in general (not required to be at a competitively level), there was no statistically significant difference between the two groups (Bond, et al., 2007). This demonstrated that both groups were employed at the same rate while participants in the supported employment program were working and earning at a competitive level twice as often. A follow up study by Frasier, et al. (2008)
determined that both participants in the IPS and DPA groups were closed successful by the state VR system at the same rate (44.5% successful employment rate) while IPS took an additional average 51 days for successful closure (Frasier, et al., 2008).

However, a recent study by Becker, Xie, McHugo, Halliday, and Martinez (2006) examined 26 collaborative programs (involving both mental health agencies and state or federal vocational rehabilitation agencies) across several states utilizing the supported employment model with individuals with severe mental illnesses in order to determine average rate of employment. Overall, the study determined that supported employment outcomes were significantly impacted by model fidelity and regional job market creating inconsistent results across programs (Becker, Xie, McHugo, Halliday, & Martinez, 2006).

In addition to severe mental illness, supported employment has been investigated in the past for beneficial outcomes when working with individuals with mental retardation and other developmental disabilities. Although supported employment services for this population are still provided today, most research was completed a decade or more ago (Wehman & Revell, 1997; Wehman, Sale, & Parent, 1992; Gilmore, Schuster, Timmons, & Butterworth, 2000; Foley, Butterworth, & Heller, 2000). It is difficult to say how supported employment is currently affecting VR services and outcomes based on a decade of service policy and delivery changes. Combined, the benefits of supported employment for any disability population in this arena are unclear at best requiring further investigation.

Based on this review of current research, transition-aged youth outcomes have been investigated to demonstrate that work experience prior to leaving high school is
important. As well, vocational rehabilitation services for adults with disabilities had predictive value. Consumers required specific services determined by disability-related employment limitations. In addition, personal characteristics suggested the likelihood of unsuccessful closure which may lead to identification of high risk populations requiring additional services. The natural progression of this research topic is to extend research to variables of personal characteristics and vocational rehabilitation services in transition-aged youth to investigate predictor variables for successful rehabilitation employment outcomes after graduation.

Summary

Through this chapter, the legislative and philosophical background to transitional services and the impact those factors have had on the Individuals with Disabilities Education Act of 1990 and subsequent amendments were reviewed. Pertinent transition models and promising practices provide the framework for current policies and service delivery in schools and the VR agencies. In addition, the rehabilitation process was compared to transitional promising practices to illustrate the complimentary structure and viable partnership between schools and postsecondary services. In conclusion, empirical studies related to the research at hand were reviewed to give insight into important variables and outcomes to investigate.
CHAPTER THREE

METHOD

The purpose of this investigation was to identify the employment outcomes of transition-aged individuals with disabilities who have received services through the VR system in the state of Ohio; to identify the specific services that were provided that predicted gainful employment; to identify if public support predicts employment; and to identify if supported employment involvement influenced employment outcomes. Data on characteristics of individuals involved in this study were analyzed to determine if there was an interrelated connection. In order to answer these questions, data retrieved from the Ohio Rehabilitation Services Commission database were analyzed. This chapter discusses the project design, procedures, the instrumentation, and the analysis procedures.

Two sets of predictor variables that relate to rehabilitation outcomes for transition-aged individuals with disabilities were identified for this study (services provided and personal characteristics of participants). The first research question involved a description of these variables where the second research question was designed to determine predictive value of those variables. Two secondary questions were later identified as also possibly having an impact of transition-aged youth and were therefore included. Specific research questions for this study include:

1. What are the characteristics, services and post-school employment outcomes of transition-aged individuals with disabilities served in the Ohio vocational rehabilitation agency?
2. What characteristics of students (disability, gender, and race/ethnicity) and VR services predict employment post-school outcomes and successful closure?

An additional analysis was completed to determine the incidence of students receiving public support prior to services and participating in supported employment outcomes. These variables were then analyzed to determine predictive value.

Project Design

The design for this project was a descriptive, ex-post facto, quantitative research design. According to Huck (2000), descriptive statistics are designed to create a picture through summarization of data on a dependent variable. This project was univariate and only explored vocational rehabilitation closure as the dependent variable. An ex post facto design involves analyzing outcomes after the fact. This design is generally used when manipulation of the independent variables is undesirable or impossible (Bellini & Rumrill, 1999), as is the case when looking at variables associated with employment outcomes. In this study, no independent variables will be manipulated or randomly assigned as the rehabilitation cases have already occurred. Therefore, the ex post facto design appears appropriate for this research project.

Participants

For this study, the sample was generated from individuals with disabilities who received services from the Ohio vocational rehabilitation agency (Ohio Rehabilitation Services Commission). The individual cases selected included the rehabilitation process steps of: eligibility, development of an Individualized Plan for Employment, and receipt of at least one vocational rehabilitation service prior to case closure in fiscal year 2006. In
addition, those cases were narrowed to individuals referred for services prior to age 22 (the age when students no longer qualify for school service).

Procedures and Variables

All statistical procedures hereafter utilized successful rehabilitation closure (employment at closure) and unsuccessful rehabilitation closure (no employment status at closure) as the central dependent variable of rehabilitation closure. However, successful rehabilitation closures were scrutinized based on specifics reported on employment achieved for research question one. The specific employment information included occupation at closure, employment status at closure, competitive employment, weekly earnings and hours worked at closure. Occupation at closure is defined through the Dictionary of Occupational Titles (DOT) code entered. Employment status has seven levels according to RSA (2004): employment without supports in integrated setting, extended employment, self-employment (except BEP), state agency-managed Business Enterprise Program (BEP), homemaker, unpaid family worker, and employment with supports in integrated setting. “Competitive employment is employment in an integrated setting, self-employment, or a state-managed Business Enterprise Program (BEP) that is performed on a full-time or part-time basis for which an individual is compensated at or above the minimum wage” (RSA, 2004, p. 35). Weekly earnings is the actual pre-tax amount a consumer receives for the average hours worked.

The independent variables were based on the research questions and chosen to study transition-aged individuals with disabilities in the Ohio VR system. Birth date was subtracted from date of application in order to determine that age at initiation of services
was before age 22 (constituting transition-age for purposes of this study).

For both initial research questions, types of services provided were analyzed. Services may have included: assessment, diagnosis and treatment of impairment, vocational rehabilitation counseling and guidance, college or university training, occupation/vocational training, on-the-job training, basic academic remedial or literary training, job readiness training, augmentative skills training, miscellaneous training, job search assistance, job placement assistance, on-the-job supports, transportation services, maintenance, rehabilitation technology, reader services, interpreter services, personal attendant services, technical assistance services, information and referral services and other services (RSA, 2004).

In addition to services, the research questions also investigated several personal characteristics of the participants. These characteristics included disability type, gender and race/ethnicity. Disability was determined based on the primary disability code entered at the initiation of a case and refined by the vocational rehabilitation counselor (VRC) as more information was acquired. Within the dataset, disability is coded with a 4 digit code resulting from the combination of the first two digits (impairment from the disability) and the last two digits (cause of the disability). Based on the fact that there were 20 possible impairments and 37 possible causes (RSA, 2004, 15-16) for a vocational rehabilitation counselor to choose between when determining the 4 digit disability code utilized in the datafile, this researcher collapsed all diagnoses into 9 main categories: Sensory Impairment (SI), Physical/Mobility (PM), Mental Retardation (MR), Traumatic Brain Injury (TBI), Autism (A), Mental Illness (MI), Communication (C),
Other Health (OH), and Other Learning (OL). Other health refers to physical disabilities that do not fit into any other category such as diabetes. Other learning refers to cognitive disabilities that do not fit into any other category such as a specific learning disability. These categories were collapsed based on closeness of disability characteristics and probable employment limitations. Although beyond the scope of this study, further research studies may choose to investigate within disability categories (such as mild, moderate and severe mental retardation).

As in disability, gender and race/ethnicity are coded by support staff or the VRC at inception of a case. Race/ethnicity is categorized into seven groups: white, black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian or Other Pacific Islander, and Hispanic or Latino. Although, the database does accept more than one ethnicity for a case, this study utilized the primary race/ethnicity coded for each consumer.

Once a review of the relevant literature was completed and analysis begun, other aspects for transition-aged youth that might impact rehabilitation closure were identified. At that time, it was concluded a secondary analysis was necessary to clarify the impact of public support at application and supported employment services. For this follow up analysis, public support was broken down into Supplemental Security Income (SSI), Temporary Assistance for Needy Families (TANF), General Assistance (State or local government), and Other. Supported employment as defined by RSA (2004) was categorized into three categories for this variable: not supported employment, supported employment with some Title VI-B funds expended, and supported employment but no
Title VI-B funds expended. Unlike public support which is collected at the beginning of a case and then amended at the end, supported employment information is only reported within the plan and at case closure.

Instrumentation

The instrument for data collection for this study was the Online Systems for Computer Assisted Rehabilitation (OSCAR). Data are entered into this system by vocational rehabilitation counselors employed by the Ohio Rehabilitation Services Commission (RSC). Through this computer program, there are multiple screens for each rehabilitation counselor to complete throughout the duration of an open VR case. All data are routinely collected on all consumers in the VR system for federal monitoring purposes through the Rehabilitation Services Administration (data file RSA-911). All consumers are informed through the application that information about cases will be used for research purposes in order to better serve individuals with disabilities. The major limitation to this study is the fact that all data was collected through those entering this data and may not always reflect an accurate picture of the individual with a disability or the case progress. At the time of this study, there was no precise way of checking the accuracy of data entered on each case other than cross checks performed by RSA.

Data Analysis

Data collected for the study was analyzed using SPSS. The first research question, “What are the characteristics, services and post-school employment outcomes of transition-aged individuals with disabilities served in the Ohio Vocational Rehabilitation System?”, was analyzed using descriptive statistics to observe employment outcomes of
individuals with disabilities. The concept of successful rehabilitation closure was explored based upon occupation at closure, employment status at closure, competitive employment, weekly earnings and hours worked at closure to look at frequencies and trends.

In addition, descriptive statistics for the independent variables were completed. The frequencies for service categories and personal characteristics were explored. Frequency comparisons were completed between disability type and services provided, gender and service, gender and race/ethnicity, and disability type and race/ethnicity. A Chi square analysis for disability and race/ethnicity and disability and gender was completed to determine if there was a significant frequency difference in incidence of disability for specific racial or gender groups. Because all independent variables (disability, race/ethnicity, and gender) were all nominal measurements or categories that determine only whether the variable was present, Chi square was the most appropriate analysis when determining a difference in obtained frequencies (Kiess, 1996.)

Question two, “What characteristics of students (disability, gender, and race/ethnicity) and VR services predict employment post-school outcomes and successful closure?”, was analyzed using logistical regression to look at prediction of outcomes. Huck (2000) stated that logistical regression is appropriate for analyzing a dichotomous dependent variable, which violates the assumptions of linearity and normality required for a multiple regression analysis, and at least one independent variable for prediction or explanatory purposes. This procedure was utilized to examine successful versus unsuccessful rehabilitation closures based on the independent variables of services
provided and personal characteristics. A logistic regression model was created through SPSS in order to determine whether services as variables could predict individual outcomes. The odds ratio was tested to determine how far the results differed from the null hypothesis or 1. All significant scores above 1 demonstrated a positive predictive value compared to scores between 0 and 1 which provided a negative or less likely predictive value. Significance was determined based on a 95% confidence interval. In addition, over 15 individuals were present in each service qualifying as enough subjects for a reliable equation in the social sciences (Stevens, 1999).

As the literature warranted, a subsequent analysis was completed to evaluate the incidence and affect of public support and receipt of SSI benefits on employment outcomes for this population. Descriptive statistics were explored for both variables and a logistic regression model was created to determine possible predictive value.

Summary

Throughout this chapter, this researcher discussed all aspects of this study’s design intended to investigate the employment outcomes of transition-aged individuals with disabilities served through the Ohio Rehabilitation Services Commission (ORSC), the vocational rehabilitation (VR) agency for the state of Ohio. As current research suggests that transition-aged youth with disabilities are not working competitively at the same level as transition-aged youth without disabilities (National Organization on Disability, 2004), more research was still warranted in an effort to decrease the gap in employment rates. This project was designed to quantitatively observe and investigate
predictor variables through personal characteristics, services rendered and public support prior to services for successful vocational rehabilitation, or competitive employment.
CHAPTER FOUR

RESULTS

In this chapter, the results were reported for each research question. In this study, 3,215 individuals met the criteria for inclusion. Each individual completed an application to the Ohio VR agency prior to age 23 and went through the rehabilitation process including eligibility, the writing of an IPE, and the provision of at least one service. In addition, all individual cases included were closed in the fiscal year 2006 (October 1, 2005 to September 30, 2006). Over half of this population was competitively employed and on average earning more than minimum wage. Of those successful closures, services provided focused on understanding the consumer’s needs in order to create appropriate plans, preparing for a job, obtaining a job, and then retaining employment. Specific findings for all research questions have been reported in the order determined in chapter one.

Post School Employment Outcomes

To answer the first question, “What are the characteristics, services and post-school employment outcomes of transition-aged individuals with disabilities served in the Ohio Vocational Rehabilitation System?”, data on several outcome measures were analyzed to provide a broad understanding of transition-aged youth in the VR system. Closure type was differentiated between successful closure (employment at case termination) and unsuccessful closure (unemployment at case termination). The outcome of the research revealed 1,778 of the 3,215 individuals or 55.3% were in employment at case closure compared to 1,437 individuals who did not exit services in employment.
Employment status was further separated into three categories for those 1,778 individuals closed in employment. Of those individuals who were successfully closed, 1,681 individuals were employed without supports in an integrated setting (94.5%), 2 in self employment (0.1%), and 95 employed with supports in an integrated setting (5.3%). Supports constituted on-going support services for individuals with significant disabilities (RSA, 2004). In addition, an integrated setting in this instance referred to an employment setting that is not segregated from the general population. Of those individuals in employment, all 1,778 were classified as competitively employed as opposed to being employed less than part-time or compensated at below minimum wage.

For participants successfully employed at closure, weekly earnings and hours employed were also reported. On average, individuals closed in employment earned approximately $289.06 per week (see Table 1). However, the mean was skewed suggesting that a natural bell curve was not present. The median for this variable was $242.00 demonstrating that the average wage was inflated by a few cases with extremely high wages. In addition to reviewing monetary gains, the number of hours worked in a week by individuals rehabilitated through the vocational rehabilitation agency was described. On average, the mean hours worked was 31.53 per week (see Table 1). Again, this average was calculated with skewed data. The median at 35 hours a week demonstrated that a few people were working significantly lower hours with many more people working more hours per week than the average.
Table 1

Measures Central Tendency for Earning and Hours Per Week for Successful Closures

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings</td>
<td>289.06</td>
<td>242.00</td>
<td>1,955</td>
</tr>
<tr>
<td>Hours</td>
<td>31.53</td>
<td>35</td>
<td>72</td>
</tr>
</tbody>
</table>

Occupational type was presented through the frequency of individuals in various jobs and careers. Counselors entering occupational type utilized the DOT to name each specific occupation which was then recoded into the nine major occupational categories (U.S. Department of Labor, Employment and Training Administration, 1991). The 9 major categories were listed in the order presented by the DOT in subsequent tables. The 9 major occupational categories included: Professional/Technical/Managerial, Clerical and Sales, Service, Agricultural/Fishing/Forestry/Related, Processing, Machine Traders, Benchwork, Structural Work, Miscellaneous (Szymanksi & Parker, 1996). Table 2 provides the frequencies for this study’s sample. From this data, the top three occupational categories were: Service (17.4%), Clerical and Sales (13%) and Professional/Technical/Managerial (10.5%).
Table 2

*Frequency of Occupational Type for Successful Closures*

<table>
<thead>
<tr>
<th>Occupational Type</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional/Technical/Managerial</td>
<td>335</td>
<td>10.5</td>
</tr>
<tr>
<td>Clerical and Sales</td>
<td>417</td>
<td>13</td>
</tr>
<tr>
<td>Service</td>
<td>559</td>
<td>17.4</td>
</tr>
<tr>
<td>Agricultural/Fishing/Forestry/Related</td>
<td>38</td>
<td>1.2</td>
</tr>
<tr>
<td>Processing</td>
<td>178</td>
<td>5.5</td>
</tr>
<tr>
<td>Machine Traders</td>
<td>60</td>
<td>1.9</td>
</tr>
<tr>
<td>Benchwork</td>
<td>32</td>
<td>1</td>
</tr>
<tr>
<td>Structural Work</td>
<td>66</td>
<td>2.1</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>93</td>
<td>2.9</td>
</tr>
</tbody>
</table>

Rehabilitation Services Received

The second portion of the first research question investigated the rehabilitation services provided and personal characteristics of transition-aged youth in the VR system. There were 22 possible services that individuals in this study could have received during the course of their cases. The frequencies of individuals receiving each service based on this sample as well as percentage are reported in Table 3. From the frequencies, guidance (71.4%) was the most common service utilized by consumers in this sample with assessment (69.5%) a close second. Both services are typical for eligibility and for the purpose of writing the individualized plan for employment (IPE). In addition to the two
most frequently utilized services in this sample, other commonly provided services include: other service (58.4%), on the job (40.6%), transportation (38.3%), placement (37.7%), job search (30.4%), miscellaneous training, (27.2%), and college (26.8%).

Guidance refers to vocational rehabilitation counseling and guidance required for an individual to reach an employment outcome (RSA, 2004), whereas assessment refers to the following:

services provided and activities performed to determine an individual's eligibility for VR services, to assign an individual to a priority category of a State VR agency that operates under an order of selection, and/or to determine the nature and scope of VR services to be included in the IPE (RSA, 2004, p. 25).

Other service included any service that cannot be categorized elsewhere. Examples of services falling into the other category included: occupational licenses and tools for employment (RSA, 2004). On the job (or on the job supports) can be clarified as services provided once employment has been reached and services such as job coaching and follow along are required to maintain that employment (RSA, 2004). Transportation consisted of all transportation related services such as public transportation training, travel expenses and vehicle repairs. However, vehicle modification was not encompassed in this category (RSA, 2004). Placement was utilized when a referral to a specific job led to an employment interview regardless of an actual hire, whereas job search was utilized for services involved in helping an individual look for employment (RSA, 2004). Miscellaneous training can refer to any type of training that does not fit into another category of training. However, college training refers to the following:
Full-time or part-time academic training above the high school level leading to a degree (associate, baccalaureate, graduate, or professional), a certificate or other recognized educational credential. Such training may be provided by a four-year college or university, community college, junior college, or technical college (RSA, 2004, p. 26).

Seventy-one percent of individuals received between a total of 3-6 services during the course of a case.

Table 3

*Frequency of Services Received*

<table>
<thead>
<tr>
<th>Service</th>
<th>n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>2235</td>
<td>69.5</td>
</tr>
<tr>
<td>Diagnostic Treatment</td>
<td>532</td>
<td>16.5</td>
</tr>
<tr>
<td>Guidance</td>
<td>2295</td>
<td>71.4</td>
</tr>
<tr>
<td>College</td>
<td>862</td>
<td>26.8</td>
</tr>
<tr>
<td>Occupational Training</td>
<td>458</td>
<td>14.2</td>
</tr>
<tr>
<td>On The Job Training</td>
<td>107</td>
<td>3.3</td>
</tr>
<tr>
<td>Literacy</td>
<td>159</td>
<td>4.9</td>
</tr>
<tr>
<td>Job Readiness</td>
<td>221</td>
<td>6.9</td>
</tr>
<tr>
<td>Augmentative Skills</td>
<td>40</td>
<td>1.2</td>
</tr>
<tr>
<td>Miscellaneous Training</td>
<td>875</td>
<td>27.2</td>
</tr>
<tr>
<td>Job Search</td>
<td>977</td>
<td>30.4</td>
</tr>
</tbody>
</table>
Placement & 1212 & 37.7 \\
On The Job & 1306 & 40.6 \\
Transportation & 1231 & 38.3 \\
Maintenance & 436 & 13.6 \\
Rehab Technology & 266 & 8.3 \\
Reader & 2 & 0.1 \\
Interpreter & 58 & 1.8 \\
Personal Attendant & 12 & 0.4 \\
Technical Assistance & 0 & 0.0 \\
Information and Referral & 83 & 2.6 \\
Other Service & 1876 & 58.4 \\

**Characteristics of Individuals Receiving Services**

In addition, personal characteristics of individuals with possible predictive and explanatory value, such as disability type, gender and race/ethnicity, were further explored. Initially, frequencies were observed to demonstrate what the sample consisted of with respect to each category (disability type, gender, and race/ethnicity). For disability type, this researcher utilized the primary diagnosis of each individual. The categories within this study, frequencies, and percentages are reported in Table 4. Due to errors within the data, these results include 2,900 individuals instead of 3,215. Although there are 18 cross-checks within the RSA data collection system, errors can still occur. Finch and Wheaton (1999) reported in a study utilizing the same datafile system that: “these errors are assumed to be random and therefore should not result in a systematic
bias in the data” (p. 217). Disability type was then compared to services delivered (See Table 5).

Table 4

Frequencies for Disability Type

<table>
<thead>
<tr>
<th>Disability Category</th>
<th>n</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory Impairment (SI)</td>
<td>331</td>
<td>10.3</td>
</tr>
<tr>
<td>Physical/Mobility (PM)</td>
<td>250</td>
<td>7.8</td>
</tr>
<tr>
<td>Mental Retardation (MR)</td>
<td>777</td>
<td>24.2</td>
</tr>
<tr>
<td>Traumatic Brain Injury (TBI)</td>
<td>35</td>
<td>1.1</td>
</tr>
<tr>
<td>Autism (A)</td>
<td>67</td>
<td>2.1</td>
</tr>
<tr>
<td>Mental Illness (MI)</td>
<td>456</td>
<td>14.2</td>
</tr>
<tr>
<td>Communication (C)</td>
<td>31</td>
<td>1.0</td>
</tr>
<tr>
<td>Other Health (OH)</td>
<td>239</td>
<td>7.4</td>
</tr>
<tr>
<td>Other Learning (OL)</td>
<td>714</td>
<td>22.2</td>
</tr>
</tbody>
</table>

Table 5

Percentage of Disability by Services Delivered

<table>
<thead>
<tr>
<th>Service</th>
<th>SI</th>
<th>PM</th>
<th>MR</th>
<th>TBI</th>
<th>A</th>
<th>MI</th>
<th>C</th>
<th>OH</th>
<th>OL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>74</td>
<td>76</td>
<td>64</td>
<td>89</td>
<td>72</td>
<td>72</td>
<td>68</td>
<td>71</td>
<td>67</td>
</tr>
<tr>
<td>Diagnostic Treat.</td>
<td>58</td>
<td>20</td>
<td>5.5</td>
<td>34</td>
<td>10</td>
<td>22</td>
<td>19</td>
<td>18</td>
<td>6.6</td>
</tr>
<tr>
<td>Guidance</td>
<td>70</td>
<td>75</td>
<td>72</td>
<td>67</td>
<td>73</td>
<td>68</td>
<td>74</td>
<td>74</td>
<td>72</td>
</tr>
<tr>
<td>College</td>
<td>52</td>
<td>56</td>
<td>.9</td>
<td>29</td>
<td>16</td>
<td>21</td>
<td>32</td>
<td>55</td>
<td>30</td>
</tr>
<tr>
<td>Category</td>
<td>11</td>
<td>14</td>
<td>13</td>
<td>26</td>
<td>75</td>
<td>15</td>
<td>6.5</td>
<td>13</td>
<td>58</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Occ. Training</td>
<td>11</td>
<td>14</td>
<td>13</td>
<td>26</td>
<td>75</td>
<td>15</td>
<td>6.5</td>
<td>13</td>
<td>58</td>
</tr>
<tr>
<td>O T J Training</td>
<td>1</td>
<td>1</td>
<td>4.8</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1.3</td>
<td>4</td>
</tr>
<tr>
<td>Literacy</td>
<td>9</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Job Readiness</td>
<td>9</td>
<td>4</td>
<td>8</td>
<td>3</td>
<td>9</td>
<td>7</td>
<td>3</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Augmentative Skills</td>
<td>7</td>
<td>0</td>
<td>.9</td>
<td>0</td>
<td>0</td>
<td>.9</td>
<td>0</td>
<td>.8</td>
<td>.6</td>
</tr>
<tr>
<td>Misc Training</td>
<td>33</td>
<td>27</td>
<td>30</td>
<td>34</td>
<td>21</td>
<td>30</td>
<td>13</td>
<td>17</td>
<td>24</td>
</tr>
<tr>
<td>Job Search</td>
<td>23</td>
<td>27</td>
<td>35</td>
<td>31</td>
<td>25</td>
<td>32</td>
<td>19</td>
<td>23</td>
<td>32</td>
</tr>
<tr>
<td>Placement</td>
<td>29</td>
<td>31</td>
<td>46</td>
<td>43</td>
<td>46</td>
<td>37</td>
<td>29</td>
<td>22</td>
<td>38</td>
</tr>
<tr>
<td>On The Job</td>
<td>25</td>
<td>22</td>
<td>65</td>
<td>49</td>
<td>58</td>
<td>40</td>
<td>45</td>
<td>19</td>
<td>33</td>
</tr>
<tr>
<td>Transportation</td>
<td>40</td>
<td>37</td>
<td>41</td>
<td>23</td>
<td>31</td>
<td>43</td>
<td>42</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>Maintenance</td>
<td>31</td>
<td>23</td>
<td>5.5</td>
<td>14</td>
<td>3</td>
<td>8</td>
<td>10</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>Rehab Technology</td>
<td>30</td>
<td>25</td>
<td>1</td>
<td>9</td>
<td>1.5</td>
<td>1.5</td>
<td>3</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Reader</td>
<td>.6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Interpreter</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Personal Attendant</td>
<td>0</td>
<td>.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>.4</td>
<td>0</td>
</tr>
<tr>
<td>Info &amp; Referral</td>
<td>5</td>
<td>3.6</td>
<td>2.7</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>.8</td>
<td>2.5</td>
</tr>
<tr>
<td>Other Service</td>
<td>66</td>
<td>57</td>
<td>60</td>
<td>46</td>
<td>61</td>
<td>58</td>
<td>58</td>
<td>52</td>
<td>56</td>
</tr>
</tbody>
</table>

The other two main personal variables included gender and race/ethnicity as determined by the VR counselor. In this study, there were 1809 males (56.3%) and 1406 females (43.7%). In addition, the sample consisted of 2640 White (82.1%), 561 Black (17.4%), 48 Hispanic (1.5%), 17 Asian (0.5%), 6 Hawaiian (0.2%), and 5 American
Indian (0.2%). Table 6 reports the shared frequencies between gender and race/ethnicity although the occurrence of minorities was too small to further analyze with any variables. The shared frequencies between disability type and race/ethnicity were also determined (See Table 7). 

Table 6 

*Frequencies of Gender by Race/Ethnicity*

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Male</th>
<th>%</th>
<th>Female</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>1512</td>
<td>57.3</td>
<td>1128</td>
<td>42.7</td>
</tr>
<tr>
<td>Black</td>
<td>290</td>
<td>51.7</td>
<td>271</td>
<td>48.3</td>
</tr>
<tr>
<td>American Indian</td>
<td>1</td>
<td>20</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>Asian</td>
<td>8</td>
<td>47</td>
<td>9</td>
<td>53</td>
</tr>
<tr>
<td>Hawaiian</td>
<td>4</td>
<td>66.7</td>
<td>2</td>
<td>33.3</td>
</tr>
<tr>
<td>Hispanic</td>
<td>24</td>
<td>50</td>
<td>24</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 7 

*Frequencies of Race/Ethnicity by Disability Type*

<table>
<thead>
<tr>
<th>Disability Category</th>
<th>White</th>
<th>Black</th>
<th>Am. Ind.</th>
<th>Asian</th>
<th>Hawaiian</th>
<th>Hisp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory Impairment</td>
<td>282</td>
<td>44</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Physical/Mobility</td>
<td>220</td>
<td>29</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Mental Retardation</td>
<td>557</td>
<td>216</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Traumatic Brain Injury</td>
<td>31</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Autism</td>
<td>61</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
In addition, it was possible to look at the frequency of males versus females in service delivery. The comparison between males and females yielded several interesting discrepancies in service utilization with the understanding that the sample was approximately 56% male to 43% female (See Table 8). On the job training (66% male) was much higher for males than expected. In addition, literacy (53% females), reader (50%), interpreter (60%), and personal attendant (50%) services were all higher than expected for females as compared to their proportion in the sample.

Table 8

*Frequencies of Gender by Services*

<table>
<thead>
<tr>
<th>Services</th>
<th>Male</th>
<th>%</th>
<th>Female</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>1270</td>
<td>57</td>
<td>965</td>
<td>43</td>
</tr>
<tr>
<td>Diagnostic Treatment</td>
<td>302</td>
<td>57</td>
<td>230</td>
<td>43</td>
</tr>
<tr>
<td>Guidance</td>
<td>1310</td>
<td>57</td>
<td>985</td>
<td>43</td>
</tr>
<tr>
<td>College</td>
<td>459</td>
<td>54</td>
<td>403</td>
<td>46</td>
</tr>
<tr>
<td>Occupational Training</td>
<td>247</td>
<td>54</td>
<td>211</td>
<td>46</td>
</tr>
<tr>
<td>Service</td>
<td>Row 1</td>
<td>Row 2</td>
<td>Row 3</td>
<td>Row 4</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>On The Job Training</td>
<td>71</td>
<td>66</td>
<td>36</td>
<td>34</td>
</tr>
<tr>
<td>Literacy</td>
<td>75</td>
<td>47</td>
<td>84</td>
<td>53</td>
</tr>
<tr>
<td>Job Readiness</td>
<td>116</td>
<td>52</td>
<td>105</td>
<td>48</td>
</tr>
<tr>
<td>Augmentative Skills</td>
<td>24</td>
<td>60</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>Miscellaneous Training</td>
<td>474</td>
<td>54</td>
<td>401</td>
<td>46</td>
</tr>
<tr>
<td>Job Search</td>
<td>572</td>
<td>58</td>
<td>405</td>
<td>42</td>
</tr>
<tr>
<td>Placement</td>
<td>691</td>
<td>57</td>
<td>521</td>
<td>43</td>
</tr>
<tr>
<td>On The Job</td>
<td>742</td>
<td>57</td>
<td>564</td>
<td>43</td>
</tr>
<tr>
<td>Transportation</td>
<td>655</td>
<td>53</td>
<td>576</td>
<td>47</td>
</tr>
<tr>
<td>Maintenance</td>
<td>238</td>
<td>55</td>
<td>198</td>
<td>45</td>
</tr>
<tr>
<td>Rehab Technology</td>
<td>143</td>
<td>54</td>
<td>123</td>
<td>46</td>
</tr>
<tr>
<td>Reader</td>
<td>1</td>
<td>50</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>Interpreter</td>
<td>23</td>
<td>40</td>
<td>35</td>
<td>60</td>
</tr>
<tr>
<td>Personal Attendant</td>
<td>6</td>
<td>50</td>
<td>6</td>
<td>50</td>
</tr>
<tr>
<td>Information and Referral</td>
<td>44</td>
<td>53</td>
<td>39</td>
<td>47</td>
</tr>
<tr>
<td>Other Service</td>
<td>1046</td>
<td>56</td>
<td>830</td>
<td>44</td>
</tr>
</tbody>
</table>

Once basic frequencies were observed, this researcher analyzed between variables when possible trying to determine any significance based on group association. A Chi-Square was utilized to look at gender and disability resulting in a significant difference in frequencies, \( \chi^2 (8, N=2900) = 57.418, p<.001 \). Post hoc analysis revealed that less than expected females were identified as having autism while more than expected males were identified as having autism (R= -4.5, R= 4.0 respectively). A comparison between
race/ethnicity and disability resulted in a significant difference in frequencies for two race/ethnicities. Those individuals categorized white compared to disability yielded $\chi^2 (8, N=2900) = 77.607, p<.001$. Those individuals categorized black compared to disability yielded $\chi^2 (8, N=2900) = 76.63, p<.001$. Post hoc analysis revealed that less than expected white individuals were identified as having mental retardation while more than expected black individuals were identified as having mental retardation (R= -3.1, R= 6.6, respectively).

### Predictive Value for Rehabilitation Outcomes

To answer the second research question “What characteristics of students (disability, gender, and race/ethnicity) and VR services predict employment post-school outcomes and successful closure?”, data were also analyzed to determine if there was predictive value within this sample. Completing the logistic regression analysis, several services were identified as being statistically significant as reported in Table 9. Individuals who received diagnosis and treatment of impairment as a service were 1.5 times more likely to be employed at case closure. As well, training appeared to be predictive of employment. Individuals receiving college as a service were 3.5 times as likely to be employed. Those with occupational training were almost twice as likely and those with on-the-job training were three times as likely to be employed. People receiving disability related augmentative skills such as “orientation and mobility, rehabilitation teaching, training in the use of low vision aids, Braille, speech reading, sign language, and cognitive training/retraining” (RSA, 2004, p. 27) are four times as likely to be employed. Placement services (5.5 times) and on the job services (two times)
predicted employment as well. The final two predictive services include maintenance and information/referral (1.2 and 1.9 times, respectively). In this study, maintenance referred to “monetary support provided for those expenses such as food, shelter and clothing that are in excess of the normal expenses of the individual, and that are necessitated by the individual's participation in an assessment for determining eligibility and VR needs or while receiving services under an IPE” (RSA, 2004, p. 29). Information and referral services occur when required services are provided by another agency through a cooperative agreement with the VR agency (RSA, 2004. Those services with nonstatistically significant results did not meet the threshold to reject the null hypothesis for this question and predict beyond chance (Kiess, page 166). Using the model, 75.6% of people employed at closure were identified correctly and 60% of those without employment. Overall, the model was able to classify 68.6% of this sample.

Table 9

<table>
<thead>
<tr>
<th>Service</th>
<th>B</th>
<th>SE B</th>
<th>df</th>
<th>Sig.</th>
<th>Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>-.104</td>
<td>.087</td>
<td>1</td>
<td>.233</td>
<td>.901</td>
</tr>
<tr>
<td>Diagnostic Treatment</td>
<td>.375</td>
<td>.113</td>
<td>1</td>
<td>.001*</td>
<td>1.455</td>
</tr>
<tr>
<td>Guidance</td>
<td>.156</td>
<td>.087</td>
<td>1</td>
<td>.075</td>
<td>1.169</td>
</tr>
<tr>
<td>College</td>
<td>1.243</td>
<td>.113</td>
<td>1</td>
<td>.000*</td>
<td>3.456</td>
</tr>
<tr>
<td>Occupational Training</td>
<td>.622</td>
<td>.121</td>
<td>1</td>
<td>.000*</td>
<td>1.863</td>
</tr>
<tr>
<td>On The Job Training</td>
<td>1.136</td>
<td>.249</td>
<td>1</td>
<td>.000*</td>
<td>3.116</td>
</tr>
</tbody>
</table>
Personal characteristics were also evaluated to determine predictive value for this sample. As demonstrated in Table 10, race and gender characteristics were not predictive for a logistic regression model created that considered these personal characteristics and employment outcome. However, some disability categories did have predictive value. Logistic regression is capable of analyzing dichotomous and categorical predictor
variables (Cizek & Fitzgerald, 1999). For disability which had 9 levels of the variable, the logistic regression had to take into account different degrees of freedom. The analysis was created by taking the final level (or disability category) and using it as a reference or control level for comparison with the other disabilities. This was not appropriate in this study as that would suggest that “Other learning” is representative of a control or reference group and would not look for predictive value in that disability category. In order to accommodate for the reference level requirement, this researcher recoded the missing cases (those unable to fit into the other 9 categories due to coding error) as a 10th level which would be used as a reference. This researcher then created a model that compared each disability category to the combination of all 10 levels through the contract method of “deviation”. By creating a model in this fashion, this researcher was able to combine the cases missing a disability code with the 9 categories as a truly representative reference category (or the category a logistic regression only utilizes for comparison). Through this process, “Other learning” was analyzed along with the other categories while the 10th level (cases without a clear diagnosis) was not. Based on this model, sensory impairments and other health were negatively predictive of employment outcomes. People with sensory impairments were .661 times less likely to be closed
Table 10

*Summary of Logistic Regression Analysis of Personal Characteristics for Employment*

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Service</th>
<th>B</th>
<th>SE B</th>
<th>df</th>
<th>Sig</th>
<th>Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Negative</td>
<td>-.123</td>
<td>.085</td>
<td>1</td>
<td>.147</td>
<td>.885</td>
</tr>
<tr>
<td>White</td>
<td>Negative</td>
<td>-.141</td>
<td>.678</td>
<td>1</td>
<td>.836</td>
<td>.869</td>
</tr>
<tr>
<td>Black</td>
<td>Negative</td>
<td>-.572</td>
<td>.674</td>
<td>1</td>
<td>.396</td>
<td>.564</td>
</tr>
<tr>
<td>American Indian</td>
<td>Positive</td>
<td>.859</td>
<td>1.030</td>
<td>1</td>
<td>.385</td>
<td>2.448</td>
</tr>
<tr>
<td>Asian</td>
<td>Negative</td>
<td>-1.046</td>
<td>.857</td>
<td>1</td>
<td>.223</td>
<td>.351</td>
</tr>
<tr>
<td>Hawaiian</td>
<td>Positive</td>
<td>.523</td>
<td>1.293</td>
<td>1</td>
<td>.686</td>
<td>1.687</td>
</tr>
<tr>
<td>Hispanic</td>
<td>Negative</td>
<td>-.668</td>
<td>.349</td>
<td>1</td>
<td>.055</td>
<td>.513</td>
</tr>
<tr>
<td>Disability</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Sensory Impairment (SI)</td>
<td>Negative</td>
<td>-.415</td>
<td>.175</td>
<td>1</td>
<td>.008</td>
<td>.661</td>
</tr>
<tr>
<td>Physical/Mobility (PM)</td>
<td>Negative</td>
<td>-.131</td>
<td>.150</td>
<td>1</td>
<td>.382</td>
<td>.877</td>
</tr>
<tr>
<td>Mental Retardation (MR)</td>
<td>Negative</td>
<td>-.044</td>
<td>.111</td>
<td>1</td>
<td>.692</td>
<td>.957</td>
</tr>
<tr>
<td>Traumatic Brain Injury (TBI)</td>
<td>Positive</td>
<td>.397</td>
<td>.350</td>
<td>1</td>
<td>.258</td>
<td>1.487</td>
</tr>
<tr>
<td>Autism (A)</td>
<td>Positive</td>
<td>.236</td>
<td>.260</td>
<td>1</td>
<td>.363</td>
<td>1.266</td>
</tr>
<tr>
<td>Mental Illness (MI)</td>
<td>Positive</td>
<td>.347</td>
<td>.118</td>
<td>1</td>
<td>.003</td>
<td>1.415</td>
</tr>
<tr>
<td>Communication (C)</td>
<td>Positive</td>
<td>.157</td>
<td>.355</td>
<td>1</td>
<td>.658</td>
<td>1.170</td>
</tr>
<tr>
<td>Other Health (OH)</td>
<td>Negative</td>
<td>-.396</td>
<td>.149</td>
<td>1</td>
<td>.008</td>
<td>.673</td>
</tr>
<tr>
<td>Other Learning (OL)</td>
<td>Negative</td>
<td>-.201</td>
<td>.105</td>
<td>1</td>
<td>.056</td>
<td>.818</td>
</tr>
</tbody>
</table>
successful while people with other health as a disability were .673 were less likely. Conversely, individuals with a mental illness were 1.4 times as likely to have positive employment outcomes. Although causality cannot be determined, a discussion of possible explanations will follow in the discussion section.

In addition to disability, total number of services was predictive of employment outcome. For every additional service provided, individuals were .758 times less likely to be successfully employed. Model strength was adequate with 73.9% for employment rates, 48.9% for unemployed and 62.8% overall.

Public Support and Supported Employment

As discussed earlier, two aspects of transition-aged youth cases were analyzed post hoc. Both public support and involvement in supported employment were observed and evaluated for predictive value. In this sample, 749 received SSI (23.3%), 17 received TANF (0.5%), and 3 received general assistance (0.1%) at application. For this study, categories of supported employment included no supported employment services and supported employment services (with or without Title VI-B funds). Supported employment refers to “competitive work in integrated work settings, or employment in integrated work settings, in which individuals are working toward competitive employment, for individuals with the most significant disabilities who require intensive supported employment services in order to perform such work” (RSA, 2004, page 44). Based on these categories, 2758 individuals (85.5%) did not receive supported employment services while 457 individuals (14.2%) did receive services. As a break
down, 159 or 4.9% of those employed received supported employment with some Title VI-B funds while 298 or 9.3% of those employed received supported employment without Title VI-B funds.

Both variables were then analyzed with a logistic regression analysis. As seen in Table 11, SSI recipients were less likely to be employed at case closure. The logistic model employed identified 80.7% of successful employment cases while it was only able to correctly identify 29.5% of unsuccessful closures. While this model was unable to classify above 57.8% of the overall cases, the successful case closure identification for this sample is useful. Also illustrated in Table 11, supported employment had predictive value when examining individuals who received supported employment services without Title VI-B funds. Title VI-B funds are appropriate when a cooperative agreement has been prearranged between the VR agency and another community partner providing those services. Those individuals receiving supported employment services (no Title VI- B funding) were less likely to be employment.

Table 11

Summary of Logistic Regression Analysis of Public Support and Supported Employment for Employment Outcome

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>df</th>
<th>Sig</th>
<th>Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplemental Security Income</td>
<td>-.559</td>
<td>.084</td>
<td>1</td>
<td>.000*</td>
<td>.572</td>
</tr>
<tr>
<td>TANF</td>
<td>-.466</td>
<td>.488</td>
<td>1</td>
<td>.340</td>
<td>.628</td>
</tr>
<tr>
<td>General Assistance</td>
<td>-.867</td>
<td>1.234</td>
<td>1</td>
<td>.482</td>
<td>.420</td>
</tr>
</tbody>
</table>
Summary

In this chapter, all research questions were analyzed and the results reported. Based on results, over half of transition-aged youth in the VR system in Ohio were competitively employed on average earning $9.17 an hour for 31.5 hours a week. The majority of the obtained jobs were in service (17.4%), clerical and sales (13%), and professional/technical/managerial (10.5%) positions. Most provided services focused on understanding the consumer’s needs and creating appropriate plans (guidance and assessment), preparing for a job (college and miscellaneous training), obtaining a job (job search, placement, transportation) and then retaining employment (on the job supports). In addition, many services are more likely to lead to employment outcomes including: diagnosis, treatment, training, and job placement. Based on these results, transition youth appear to require appropriate training based on specific learning styles and employment goals identified through guidance and assessment. A discussion of the results and implications for practice are provided in the following chapter.
CHAPTER FIVE
DISCUSSION

This study was designed to investigate the employment outcomes of transition-aged youth in the state VR system in Ohio, characteristics of individuals included in this study, and predictors of employment outcomes for this sample. This chapter discusses the researcher’s interpretations based on the results of the completed research as well as identifies implications for practice and recommendations for future research. The discussion has been structured through the research questions utilized.

1. What are the characteristics, services and post-school employment outcomes of transition-aged individuals with disabilities served in the Ohio vocational rehabilitation agency?

2. What characteristics of students (disability, gender, and race/ethnicity) and VR services predict employment post-school outcomes and successful closure?

Additional secondary analyses were completed to determine if students receiving public support prior to services or participating in supported employment impacted employment outcomes for this population.

Based on these questions, information was gathered from the RSA-911 datafile compiled by the Ohio Rehabilitation Services Commission. The data in this datafile were collected, organized and managed in Ohio by the OSCAR computer system. Data were entered by vocational rehabilitation counselors throughout an individual’s case. Cases were included in this study based on age of the consumer when the case was initiated, the provision of at least one service after a service plan was written, and year of closure.
Three thousand two hundred and fifteen consumers met these criteria in the fiscal year 2006. Based on the sample that met the above requirements, the research questions were investigated and interpreted. When possible, national data from transition-aged youth from fiscal years 2002-2006 and the general population were contrasted.

**Explanation of Findings across the Research Questions**

*Post School Employment Outcomes*

The first question that was posed in this study was designed to identify the employment outcomes of transition-aged youth in the Ohio VR system. Beyond whether or not these individuals were becoming employed, what did employment look like for most consumers? Several factors were investigated to answer this question.

Within this study, 1,778 individuals of the 3,215 sample or 55.3% were employed. While this rate is almost identical to several of the reviewed studies investigating adult vocational rehabilitation consumers conducted over the span of this decade (i.e. Chan, et al., 2006; Dunham, Schrader, & Dunham, 2000), it is slightly lower than the national average in 2006 of 58% (Institute for Community Inclusion, n.d.). Of the 1,778 employed individuals, 1,681 individuals were employed without supports in an integrated setting (94.5 %), 2 were self employment (0.1), and 95 were employed with supports in an integrated setting (5.3%). All employed individuals were classified as competitively employment (working at least part-time and earning at least minimum wage) as opposed to being employed less than part-time or compensated at below minimum wage. These findings establish that most individuals within this sample who reach employment were performing at competitive jobs without current outside assistance.
required. This would suggest that the developed plans and delivered services were appropriate for the individuals who found employment. In addition, self employment did not appear to be highly sought or achieved in this population. Although self employment is an initiative in vocational rehabilitation, self employment is often sought by individuals who have specific work skills in conjunction with the necessary personal and financial resources, as well as business management skills, required of a business owner. The coordination of starting a business would most likely be overwhelming for any youth with or without a disability.

Those working on average earned $289.06 a week; although, the skewed data suggests more individuals earned less than the average. In addition, the average hours worked in a week was 31.53, comparable to the national average of 32.6 hours in 2005 (National Council on Disability, 2008). However, this average was also skewed suggesting more individuals worked more hours. Based on these averages which included the outliers, the average consumer earned $9.17 an hour. In contrast, the average individual in this sample were earning over $2 an hour over minimum wage, which at the time of study was $6.85 an hour, and thirty cents more than the national average in 2005 of $8.89/hr (National Council on Disability, 2008).

In addition to compensation, this study observed type of employment goal obtained by this sample of transition-aged youth. Utilizing the DOT categories, three occupational categories represented a majority for this sample which is even more pronounced within the current national data. These categories are as follows with Ohio preceding national percentages: service (17.4% vs. 31%), clerical and sales (13% vs.
13%) and Professional/Technical/Managerial (10.5% vs. 25%) (National Council on Disability, 2008). It would be easy to conclude that service and clerical and sales are typical of entry-level low paying jobs thus initiating this hypothesis. However, the third most documented category was professional/technical/managerial suggesting many transition-aged youth entered better paying non-entry level employment. In this sample, specific occupations reported included: data recovery planner, manager, government community worker and nurse.

Based on these findings, more than half of the transition-aged youth in the VR system who received at least one service after a plan was written became competitively employed in conjunction with VR services. In addition, on average these individuals were making over $2 an hour over minimum wage and were working 31.5 hours a week. Of those working, the types of employment were varied and not specific to only entry-level employment positions. All of this suggests positive outcomes for those employed with the assistance of VR services.

Services Received

Services provided were also observed for transition aged youth in the VR system. As demonstrated in this study, it appears that the most common service provided to this sample was guidance followed by assessment. Comparatively, Table 12 shows that the national sample also yielded guidance and assessment as the most common service provided for this population (National Council on Disability, 2008). Of those included in this study, 71.4% reportedly received guidance from the counselor about plan provisions, employment options, and/or case progress. In addition, 69.5% received some type of
assessment (psychological, physical, or vocational) determined necessary to plan appropriately for the individual. As this researcher expected, assessment and guidance, the two most appropriate services, are integral in determining needs/expectations of the individual and plan creation, which are the two main goals of a counselor in the process of acquiring a sustainable employment outcome. In addition, the comprehensive consumer assessment (resulting from various psychological, physical, and work skills evaluations) and counselor guidance are both services most often directly provided by the VR counselor.

Table 12

*Percentage of Services Received for Ohio and National*

<table>
<thead>
<tr>
<th>Service</th>
<th>Ohio</th>
<th>National*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>69.5</td>
<td>22.2</td>
</tr>
<tr>
<td>Diagnostic Treatment</td>
<td>16.5</td>
<td>9.6</td>
</tr>
<tr>
<td>Guidance</td>
<td>71.4</td>
<td>22.5</td>
</tr>
<tr>
<td>College</td>
<td>26.8</td>
<td>7.3</td>
</tr>
<tr>
<td>Occupational Training</td>
<td>14.2</td>
<td>4.8</td>
</tr>
<tr>
<td>On The Job Training</td>
<td>3.3</td>
<td>1.5</td>
</tr>
<tr>
<td>Literacy</td>
<td>4.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Job Readiness</td>
<td>6.9</td>
<td>5.6</td>
</tr>
<tr>
<td>Augmentative Skills</td>
<td>1.2</td>
<td>0.9</td>
</tr>
<tr>
<td>Miscellaneous Training</td>
<td>27.2</td>
<td>4.9</td>
</tr>
</tbody>
</table>
Note: While this study observed services provided throughout the entire rehabilitation case for cases closed in 2006, national data only identified services provided to transition-aged youth in fiscal year 2006. Information and Referral data was not reported in the national data.

Prior to placement, many individuals required some level of training or employment preparation. Appropriate services are based on desired employment outcome and learning style of the individual. These services included college, miscellaneous training and on the job supports. Over 40% of this sample received on the job supports such as job coaching and job retention services. While a little over a quarter received miscellaneous training (training to obtain a high school diploma or GED, 27.2%), about the same amount received some form of college level education (26.8%). However, the length and graduation status was not observed in this study. These percentages imply a
need for further learning beyond high school for these individuals to become employed post high school graduation.

Beyond preparing for employment, many services noted at higher frequencies can be considered directly related to obtaining employment. Thirty-eight percent of this group required transportation to get to or from services and employment. Thirty percent required assistance in completing a job search while 37.7% required help actually finding a job placement or job offer. In addition, over half of individuals in this study also received the service other (58.4%). Services are categorized other when no other category is appropriate. Examples of services that would be counted here include: “occupational licenses, tools and equipment, initial stocks and supplies” (RSA, 2004, p. 32). It should also be noted that medical care arising from an acute condition that is interfering with case progress would be coded in this service.

From these statistics a pattern begins to emerge. Most individuals in this study receive the services required to understand their needs and to create appropriate plans (guidance and assessment). Services beyond the first two (assessment and guidance) are directly associated with preparing for a job (college and miscellaneous training), obtaining the job (job search, placement, transportation, and other as described above) and then retaining the job (on the job supports). The concentration of services appears appropriate for a state agency with the mission of obtaining and maintaining employment for individuals with additional needs due to disability and the vocational rehabilitation process.
Overall, the percentages of services are vastly different when comparing this state’s data to a national sample (see Table 12). There are many possible reasons for the discrepancy in frequency of services provided. One possibility is that transition-aged youth in other states may be receiving more services prior to leaving high school therefore not requiring as much VR assistance. Another possibility is that transition-aged youth are more often connected with services such as developmental disabilities agencies that also provide similar employment services with the addition of wrap around services for housing and recreation. A third possibility is that Ohio, in making transition a priority, is committed to working with transition-aged youth and providing all possible needed services to give individuals the best possible chance at successful integration into the work force. Inconsequential of the cause, Ohio should strive to identify high school students who may require services, supplement current school services through collaboration, and provide a holistic approach to individual needs and appropriate services.

*Characteristics of Individuals Receiving Services*

The second type of variables in question one investigated the personal characteristics (disability type, gender and race) of the sampled individuals. When appropriate and possible, these variables were correlated. When available, the results were compared between Ohio, national transitional youth data, and the general population.

The first characteristic to be examined was disability type. Disabilities were categorized into 9 main groups based on impairment and source/cause of impairment. Of
3,215 individuals in the sample, 2,900 individuals could be categorized based on entered information. It was difficult to compare national and state data for disability as the disability categories were not a clear match (see table 12). However, it is important to note that almost 50% of those served in both samples had some type of cognitive disability (National Council on Disability, 2008). The largest disability category in this study was mental retardation (24.2%) with the second largest being other learning disabilities (22.2%). The third highest was mental illness (14.2%, and nationally 22.1%). This demonstrates that over 60% of this population (or about 70% nationally) would require services specific to individuals with cognitive and emotional disabilities, frequently requiring similar employment services. Often students who have not done well in a traditional classroom setting due to cognitive or behavioral issues benefit from hands-on training (job task training through demonstration) and work adjustment (job task training in an employment setting). Based on the literature (Benz, et al., 2000; Rabren, et al., 2002) and this research, services should be provided in a community based work environment prior to graduation (such as work study or school credit for work experiences and summer opportunities). In addition, due to the amount of diverse students who would benefit from similar services, a concerted effort should be made to provide services in a group setting (utilizing less staff with more students through one employment site with multiple job positions) for a reduction in cost and increase in experiential opportunities for students.
Table 13

*Frequencies for Disability Type from Ohio and National Data*

<table>
<thead>
<tr>
<th>Disability Category</th>
<th>Ohio</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory Impairment (SI)</td>
<td>10.3</td>
<td>6.2</td>
</tr>
<tr>
<td>Physical/Mobility (PM)</td>
<td>7.8</td>
<td>9.1</td>
</tr>
<tr>
<td>Mental Retardation (MR)</td>
<td>24.2</td>
<td>18.4</td>
</tr>
<tr>
<td>Traumatic Brain Injury (TBI)</td>
<td>1.1</td>
<td>1.7</td>
</tr>
<tr>
<td>Autism (A)</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td>Mental Illness (MI)</td>
<td>14.2</td>
<td>22.1</td>
</tr>
<tr>
<td>Communication (C)</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Other Health (OH)</td>
<td>7.4</td>
<td>10.5</td>
</tr>
<tr>
<td>Other Learning (OL)</td>
<td>22.2</td>
<td>31.9</td>
</tr>
</tbody>
</table>

Note: Some categories were not specified. The national data categories of Mental Health and Substance Abuse were collapsed into Mental Illness for this table.

Beyond disability, several other characteristics were observed. Gender yielded 1809 males (56.3%) and 1406 females (43.7%). This does closely correspond to national data on transition-aged youth with an average of 59% males and 41% females for the fiscal years of 2002-2006 (National Council on Disability, 2008). In comparison, the state of Ohio for the 2000 Census had a general population of 48.6 % males to 51.4% females (U.S. Census Bureau, 2000). This more complete picture suggests that both nationally and, more specifically, within the state of Ohio, fewer females with disabilities are
seeking VR services than males. Although these findings suggest a disparity between the general population and transition-aged youth with disabilities population, an actual higher incidence in disabilities for males cannot be determined based on these results alone. Some alternative reasons for the disparity may include a decreased desire for employment by females or later entry into the workforce due to pregnancy and childcare. Either scenario would result in fewer VR cases being opened or delaying the opening of a case until after a person is no longer considered transition-aged.

When comparing disability type to gender, there was a significantly higher rate of males identified with autism in this study. This is parallel to current research that has demonstrated that males are more likely to be referred and identified for asperger’s syndrome, a milder form of autism (Attwood, 2006; Ehlers & Gillberg, 1993; Wagner, 2006).

With respect to race/ethnicity, the sample consisted of a majority of 2,640 White individuals (82.1%), with the largest minority being 561 Black individuals (17.4%). There was not a large representation of other minorities; however, there were 48 Hispanic (1.5%), 17 Asian (0.5%), 6 Hawaiian (0.2%), and 5 American Indian (0.2%) individuals in the sample. The following were demographics for the state of Ohio (U.S. Census Bureau, 2000): White (85%), Black (11.5%), Hispanic (1.9%), Asian (1.2%), Hawaiian (0.0%), and American Indian (0.2%). From this comparison, it is clear that Black individuals were represented at a higher disability incidence rate than in the general population. The cause of this is undetermined; however, some possibilities include true higher disability incidence, better disability identification and service provision, or higher
representation due to other factors not related to disability (such as misidentification due
to cultural bias). When comparing gender to race, there was not a significant enough
representation of minorities to make any comparative statements.

Due to the low number of participants, it was only possible to compare disability and race/ethnicity for consumers coded as White or Black. However, according to the results, individuals categorized as White were less likely to be categorized as having mental retardation while Black individuals were more likely. This trend is consistent with national trends. According to the NLTS-2 study while other minorities have closed the gap between their representation in the general population and within all disability categories, African American individuals across the nation are still diagnosed with mental retardation at a higher proportion than the general population (Facts from OSEP's National Longitudinal Studies, 2002). Further investigation is warranted to determine whether race/ethnicity had a bearing on categorization or actual disability type frequency.

Predictive Value

Beyond description, several variables appear to have a direct positive effect on employment outcomes. Many services considered core to the VR process provided clear predictive value. As demonstrated in most prediction studies of this nature (Bolton, et al., 2000; Moore, et al., 2002), placement is by far the strongest predictor of employment outcomes. These job placement findings directly correspond with previous research by Bolton, Bellini, and Brookings (2000). Therefore, these results demonstrate the necessity for placement to have as high a priority in the VR process for this population as in all others.
For transition-aged youth in this sample, several other services also had predictive value. Individuals who received diagnosis and treatment of impairment as a service were one and a half times as likely to be employed at case closure. Findings like these suggest that consumers who are properly diagnosed and then treated for a specific disabling condition beyond the minimal requirements of eligibility are more likely to successfully reach an appropriate employment goal. Holistically understanding all of the medical and psychological factors that may interfere with gaining and maintaining employment can better prepare counselors and consumers to plan and prevent issues on the job prior to an actual incident.

Parallel to research completed by Bolton, Bellini, and Brookings (2000), several specific types of training appeared to be very predictive of employment based on personal factors. College training increased the likelihood of successful employment by 3.5 times. While occupational training (generally through some type of community college) doubled the probability of employment, on the job training (specific job duty training by an employer) tripled employment outcomes. On the job supports consisting of job coaching and job retention doubled the probability of employment for individuals requiring this level of training. In addition, people receiving disability-related augmentative skills training were four times as likely to be employed, although only necessary for a small number of consumers. These findings suggest that although different levels of employment and different learning styles require various types of training, further training of some type beyond what is provided currently in high schools is directly predictive of positive employment outcomes for this population.
Two additional services that had predictive value included maintenance and information/referral (two times). With the understanding that maintenance is utilized for people incurring additional cost due to participating in services (such as uniforms and room and board for training opportunities), a population recently entering the labor market with few personal resources would logically require this type of service. Information and referral services also appear consistent as people with disabilities often have several obstacles to employment not related to disability (such as child care and medical insurance) that cannot all be overcome with vocational rehabilitation services. Again, a population new to the labor market and the requirements of self-sufficiency would likely be unaware of all needed resources initially. Both services are not only logical for this population but predict successful employment outcomes while youth utilize and navigate both VR and other adult agencies.

Based on this research, there are several promising predictors identified for transition-aged youth in the vocational rehabilitation system based on services alone. These individuals often require a clear understanding and proper treatment of disabling conditions, further training based on vocational goal and learning style/abilities, and placement services which may require maintenance to participate. In addition, as these youth enter the adult working role, they will most likely need additional services from various agencies through referrals from VR.

Beyond looking at specific services received, the total number of services may be influential on the process and outcome of services. Seventy-one percent of individuals received between 3 and 6 services in an attempt to gain employment. Further analysis
revealed that for every additional service provided, individuals were .758 times less likely to be successfully employed. Based on the Rehabilitation Act of 1973 which requires each state to work with people with the most significant disabilities first, VR consumers are more likely to require multiple services to decrease various employment barriers stemming from significant disability-related needs.

Based on both frequency and predictive value, VR services begun prior to graduation through employment obtainment and case closure appear to provide a bridge for transitioning youth from high school and school services into the community and adult services. This extended period of contact allows the individual and counselor to build a deeper level of rapport and therapeutic relationship which can increase effective communication resulting in higher levels of case success (Bertolio & O’Hanlon, 2002; Hubble, Duncan, & Scott, 2002). As well, the higher level of contact through a longer duration can allow the individual and vocational counselor time to become jointly vested in the rehabilitation process and a successful closure.

Therefore, this research suggests that individuals leaving secondary settings still have several unmet needs that are being addressed with vocational rehabilitation in an effort to gain employment. The main structure of the VR process and resulting services are beneficial for transitioning youth and increase successful outcomes. In addition, the fact that VR counselors are entering high schools and working with transition youth prior to graduation supports the idea that a bridge from school to work is developed based on the consistent relationship developed, necessary services, and connections to other adult agencies youth may also require during an already overwhelming developmental stage.
Beyond services, race and gender did not appear to have predictive value for this sample. However, some disability categories do appear to have predictive value. Both people with sensory impairments and other health impairments were about two-thirds times less likely to be closed successful. Although individuals with a mental illness were 1.4 times as likely to have positive employment outcomes, causality cannot be established. One theory to explain these findings would need to take into account research and findings on other aspects of this same puzzle. While people with sensory and other health impairments might be more likely to gain SSI eligibility due to physical evidence of disability limitations, it may be more difficult for people with severe mental illness to prove disability and receive SSI. As noted in the literature review (Stapleton & Erickson, 2004; Berry, 2000; Bond, et al., 2007; Rosenthal, et al., 2007; Chan, et al., 2006) and through this study, SSI recipients are less likely to become gainfully employed. Further consideration should also be given to the severity of the mental illness as mental illnesses commonly emerge in this age range. People with severe mental illnesses represented in rehabilitation literature (Rosenthal, et al., 2007) have often been ill for years or decades and had multiple experiences with hospitalizations, relapses and service providers. Moreover, people with mental illness are more likely to receive supported employment services through a cooperative agreement between VR and a community mental health provider when available as compared to those with purely physical disabilities. As established in this study, those who received supported employment through cooperative agreements are more likely to be employed at closure.
The personal characteristics can also be compared to services delivered. For example, there were several interesting discrepancies between gender and service (sample included 56% male to 43% female). Males were more likely to receive on-the-job training (66% male) which does make sense in the light of Ohio’s historically male oriented employment goals and related apprenticeship training options (welding, construction-related occupations, etc). However, literacy (53% females), reader (50%), interpreter (60%), and personal attendant (50%) services were all higher than expected for females, although based on low overall frequency. At this time, current research often bases their gender research on specific disability populations. Type of disability should affect types of services provided; however, autism was the only disability category that proved significant when compared to gender. This would suggest that if the service is not directly tied to autism, representation for both genders should be equal. Unfortunately, without further deviation between disability and gender, no further conclusions can be drawn at this time.

Public Support and Supported Employment

After initial research question testing, further examination was required for receipt of public support and supported employment services. Based on the sample, about a quarter of the group received some type of public support including 749 receiving SSI (23.3%), 17 TANF (0.5%), and 3 general assistance (0.1%) at application. This is much lower than the national average where about 63% of the transition population received SSI Blind or SSI Disabled in 2006 (National Council on Disability, 2008). It is unclear why such a discrepancy in SSI benefits exists and further research is warranted before
making any speculations on causality. However, of those receiving public support in this study, SSI recipients were less likely to be employed at case closure corresponding to current research (Stapleton & Erickson, 2004; Berry, 2000; Rosenthal, et al., 2007). This would suggest that transition-aged SSI recipients require more intensive or better prescribed services to reach employment due to a higher risk of being closed without employment.

In addition, the utilization of supported employment was observed. In this sample, 2758 individuals (85.5%) did not receive supported employment services while 457 individuals (14.2%) did receive services. Of those who did receive supported employment services, those who received supported employment without Title VI-B funds were less likely to be employed at case closure. Although cause cannot be established, the connection between supported employment services that are directly contracted by the state VR agency to another community agency and positive employment outcomes is significant. Those without a cooperative agreement may be progressing through the system without receiving the required follow along in order to maintain employment due to lack of funding and oversight.

Outcomes of Research

Based on the observation of frequencies, it is important to note that over half of all individuals in this study were closed with employment. On average individuals in this study earned about $9.17 an hour and worked more than 31 hours a week. Overall, about 40% of all occupations obtained for this sample fell into the categories of service, clerical and sales, and Professional/Technical/Managerial. These results demonstrate that those
successfully closed are working and compensated well for youth without longevity in work history or time-tested skills and work behaviors.

Analysis of service provision presented influential services for this population in the pursuit for employment. The two most often provided services for transition-aged youth were guidance and assessment. Core vocational rehabilitation functions, guidance and assessment should be particularly valuable in helping individuals with limited employment experience and employability skills not only choose vocational goals but also to determine further training and needed services. In conjunction, providing between 3-6 services appears to be the average for helping transition-aged youth into employment through vocational rehabilitation. Specific predictive services for successful outcomes included diagnosis and proper treatment of disabling conditions, further training based on vocational goal and learning style/ability, and placement services which may require maintenance. As well, information and referrals to other adult agencies was predictive of successful outcome for this population which can be considered new to the labor market and non-school based services.

Outside of services, personal characteristics and the influence of those variables on employment outcomes were examined. Focusing on disability, over 60% of the individuals in this study had some type of mental disorder whether cognitive or emotional. More males were served in Ohio compared to females which is on target with national data but inconsistent with the state’s demographics for gender. As well, men were more likely to be diagnosed with autism which is also consistent with current national trends. Notably with race/ethnicity, more Black individuals were present in this
study compared to the general population of the state of Ohio. Higher representation for Black individuals in the mental retardation disability category was also noted and does appear to be the national trend as stated earlier.

Based on this research, there were several predictive factors that contributed to the nearly 45% unsuccessful closure rate. With respect to disability, those with sensory and other health impairments were less likely to be closed in employment while those with mental illness were more likely to be closed in employment. In addition, secondary analysis revealed that the transition-aged SSI recipients (approximately 23% of this sample) were two-thirds less likely to be employed at case closure. In addition, of the 14% of employed individuals receiving supported employment services in this study, almost half were receiving supported employment services without the benefit of Title VI-B funds, now shown to also be predictive of unsuccessful closure. Although these factors do not account for all 45% of unsuccessful closures which is consistent with national averages, these predictive values are an excellent starting point for further research and intervention strategies.

Implications for Practice

Based on the results and discussion, there are several implications for practice from this study. Some of the findings may help to better clarify best practices when working with transition-aged youth as well as identify some special considerations when developing programs and services for this population. Above all, this research demonstrates that there are a lot of high quality employment outcomes for this population.
Based on the findings in this study, VR counselors should continue to develop plans and provide services to transition-aged youth in the VR system with the goal of finding competitive employment paying higher than minimum wage. In addition, VR counselors should focus on fostering and creating employment opportunities for individuals outside of the typical entry-level service and sales industries. Taking individual interest and ability into account, many occupational categories have entry level positions that may pay higher rates with better benefits. These incentives can better prepare and encourage individuals to decrease public support and become self-sustaining. In addition, employment opportunities in areas that experience less turnover and seasonal work may help individuals maintain employment through consistent work site management and natural supports.

In addition, VR counselors need to work collaboratively with secondary settings to ensure proper referrals, time for rapport building, involvement in the IEP/school service planning meetings, and a seamless transition into the VR process prior to graduation. As demonstrated in this study, the VR process and services are beneficial and predictive of positive employment outcomes for transitioning youth. More specifically, as students leave high school, many are in need of clear diagnoses and disability awareness, possibly due to the lack of participation in school program planning and level of maturation/understanding. Most individuals in this study received the
services essential to understand their needs and to create appropriate plans (guidance and assessment) which is essential to success. Based on the needs demonstrated in this study, VR counselors are in a unique position to have the skills and abilities through proper rehabilitation counseling training to not only discuss the assessment results and limitations to employment but also to guide students into appropriate employment goals and services based on interest, limitations/accommodations, and labor market information. Therefore, the provision of these services should be encouraged and delivered by trained rehabilitation professionals.

Services should also focus on preparing for employment (college and miscellaneous training), obtaining employment (job search, placement, transportation, and other as described above) and then retaining employment (on the job supports). Based on this study, transition-aged youth are not entering the VR system with the necessary training to independently become employed in appropriately chosen fields. Training may consist of college training, occupational training, on the job training, on the job supports, or disability-related augmentative skills training. Appropriate training services should be based on employment goal and learning ability/style of the individual consumer. Above all, placement is vital to this consumer population especially due to the new prospect of employment. Counselors should also be prepared to assess the transition-aged consumer’s maintenance and information/referral needs.

When identifying at risk individuals as demonstrated by those who were less likely to be employed, SSI recipients and those who are receiving supported employment without Title VI-B funds are more likely to be unemployed at case closure. Although the
issue for SSI recipients appears to extend to the entire SSI recipient population, employment is not unobtainable. Prior to service planning and provision, SSI recipients should be informed about incentives to work and how SSI benefits will change with employment through benefits analysis and consultation with local Social Security Administration (SSA) specialists. Providing more clear information to youth who are applying for SSI or who are already receiving SSI may decrease fear associated with the loss of benefits. In addition, counselors should be diligent in contracting supported employment services for individuals requiring the additional follow along services. For those ineligible for funded supported employment services, VR may need to identify additional support for these individuals to reach and maintain successful employment.

In addition, consumers who have sensory impairments or other health impairments should be considered at risk. Interventions based on further analysis and best practices should be determined and implemented through school or VR services. Counselors should investigate and promote group services such as job clubs and work adjustment for consumers with mental disabilities when appropriate in an effort to decrease cost and expand time in work related experiences. Finally, counselors should encourage consumers while still in high school to participate in school supported work programs such as work study or provide summer/school break work experiences as supported by current literature.

Recommendations for Policy

Some trends that arose throughout this study included the continued discrepancy between the rates of the general population and individuals in this study. Currently, there
are more transition-aged males served than females although this is not consistent with the demographics of Ohio. In addition, there is a higher percentage of Black individuals being served than is commensurate with the representation in the state. Black individuals were also more likely to be diagnosed with mental retardation where White individuals were more likely categorized with other learning disabilities. As this is a national trend, it is recommended that policy makers at the state and national level continue to monitor these trends to ensure proper referral in underserved populations and diagnosis in overrepresented populations.

It is also recommended that VR counselors receive continued training in several areas. First and foremost, master’s level rehabilitation counselors should continue to be recruited and preferred for state vocational rehabilitation employment. If necessary, master’s level counselors hired without specific rehabilitation counseling degrees need core rehabilitation counseling training in order to better service consumers in assessment and guidance. In addition, auxiliary trainings for all VR counselors working with transition-aged youth should include: social security benefits, an overview of populations that are currently overrepresented and underrepresented in VR services for the region, the benefits and standards for supported employment opportunities, and the specific needs of the transition-aged population. Counselors need specific training on the transition from school based services into adult services. Counselors dealing with this population need to be able to not only understand the needs that students often necessitate (such as job placement and further training) but also how to navigate other adult services these individuals will likely require. This recommendation is further supported by national
research completed by The Study Group, Inc (2007) and the National Council on Disability in 2008. Concise recommendations from the National Council on Disability include, “RSA and state VR agencies should allocate additional staff development resources for the preparation of current and future rehabilitation counselors to meet the needs of transition-age youth, and target recruitment and professional development activities to attract qualified people with disabilities to the field” (National Council on Disability, 2008, p. 107).

It is also recommended that policy makers continue to invest in joint service efforts prior to graduation. School and VR activities should be coordinated prior to graduation and as early as possible. Based on disability demographics for this population, it is also recommended that longer term, group service provision is explored to enhance services for individuals with cognitive and emotional impairments to employment in a cost-effective approach. Collaboration and information sharing between secondary education agencies, VR and the Social Security Administration (SSA) should be fostered. Joint efforts to understand how to better serve SSI recipients and provide valuable information specific to the transition-aged population is still needed. More specifically, consumer-friendly information should be added on the SSA website and other published materials specific to transition youth. In addition, supported employment cooperative agreements with necessary funds should continue and expand as needed for transition-aged consumers requiring supported employment services based on this research and research completed by The Study Group, Inc (2007). Complete follow along plans for supported employment are vital to individuals requiring a continued level of service.
Recommendations for Further Research

The next logical step in this line of inquiry is taking a deeper look at successful predictor variables, such as training type, and employment outcomes within the context of cost/benefit of services. Variables that increase the likelihood of employment exponentially should be investigated to demonstrate the continued need and possible expansion of those services. In addition, predictor variables for the 45% of individuals who did not reach employment outcomes need further exploration to determine interventions and best practices for providing better prescribed services.

Although this study only investigated individuals who received at least one service after plan development, there are options to continue investigating all consumers who were closed without employment. This would include consumers who did not reach eligibility due to severity of disability, eligible individuals who exited the system prior to writing a plan, and those who had an approved plan but did not start services. Determining predictor variables and identifying all at risk consumers can again enhance the probability of creating successful interventions for consumers who are more likely to be closed prior to receiving services and finding employment.

On a national level, future research should focus on the VR services, policies and practices of all states to further examine and verify the generalizability of promising practices for this population. Also, research should focus on identifying underrepresented and underserved populations of transition-aged youth. These last two research recommendations are further supported by recommendations submitted by the National Council on Disability (2008) and The Study Group, Inc (2007).
Limitations

A major limitation to this study pertains to generalization of findings different to populations and VR systems. First, this study focused on transition-aged youth in the Ohio vocational rehabilitation system and therefore may not be generalizable to other states. In addition, within the state of Ohio, there is variance between offices and county demographics requiring reservations when making blanket generalizations for all individuals alike.

A second limitation involves the fact that no reliability measure was involved for data inputted into the VR database. A reliability measure would have reinforced the data collection for this study. However, RSA (1995) does have 18 cross-checks to verify that data has been entered correctly. These cross-checks are built into the computer system to maintain that steps and data have not been left out or are contradictory. In addition, this type of design does not lend itself to making clear causality statements as is possible with experimental design research.

Conclusions

Based on the results of this study, transition-aged youth in Ohio’s state vocational rehabilitation offices are served and reach similar outcome rates comparable to national data; however, further study is warranted to investigate the remaining high percentage of unsuccessful closures. This study also clarified that transition-aged youth are more likely to be employed when they have received diagnostics, vocational guidance, further training, and placement. In contrast, individuals receiving SSI or supported employment services (non-VR contract) or those who have sensory or other health impairments are at
a higher risk for not reaching employment goals. As promising practices evolve based on new evidence and changing circumstances, these results should be utilized by vocational rehabilitation counselors, school personnel and community rehabilitation partners to continue to refine appropriate services in order to enhance the employment outcomes of all transition-aged youth.
APPENDIX A

Glossary of VR Services

Note: Service definitions are provided by the Rehabilitation Services Administration Case Reporting Manual, 2004.

Assessment: Assessment means services provided and activities performed to determine an individual's eligibility for VR services, to assign an individual to a priority category of a State VR agency that operates under an order of selection, and/or to determine the nature and scope of VR services to be included in the IPE. Include here trial work experiences and extended evaluation.

Diagnosis and Treatment of Impairments: Diagnosis and treatment of impairments means:

a) Corrective surgery or therapeutic treatment that is likely, within a reasonable period of time, to correct or modify substantially a physical or mental impairment that constitutes a substantial impediment to employment;

b) Diagnosis and treatment for mental and emotional disorders by qualified personnel who meet State licensure laws;

c) Dentistry;

d) Nursing services;

e) Necessary hospitalization (either inpatient or outpatient care) in connection with surgery or treatment;

f) Drugs and supplies;

g) Prosthetic, orthotic, or other assistive devices, including hearing aids;

h) Eyeglasses and visual services, including visual training, and the examination and services necessary for the prescription and provision of eyeglasses, contact lenses, microscopic lenses, telescopic lenses, and other visual aids prescribed by personnel who meet State licensure laws and are selected by the individual;
i) Podiatry;

j) Physical therapy;

k) Occupational therapy;

l) Speech or hearing therapy;

m) Mental health services;

n) Treatment of either acute or chronic medical complications and emergencies that are associated with or arise out of the provision of physical and mental restoration services or that are inherent in the condition under treatment;

o) Special services for the treatment of individuals with end-stage renal disease, including transplantation, dialysis, artificial kidneys, and supplies; and

p) Other medical or medically related rehabilitation services.

Vocational Rehabilitation Counseling and Guidance: Vocational rehabilitation counseling and guidance means discrete therapeutic counseling and guidance services that are necessary for an individual to achieve an employment outcome, including personal adjustment counseling, counseling that addresses medical, family, or social issues, vocational counseling, and any other form of counseling and guidance that is necessary for an individual with a disability to achieve an employment outcome. This service is distinct from the general counseling and guidance relationship that exists between the counselor and the individual during the entire rehabilitation process.

Training: General note: Training services are designed to help the individual improve educationally or vocationally or to adjust to the functional limitations of his or her impairment. If the individual receives more than one type of training, each type should be recorded.
College or University Training: Full-time or part-time academic training above the high school level leading to a degree (associate, baccalaureate, graduate, or professional), a certificate or other recognized educational credential. Such training may be provided by a four-year college or university, community college, junior college, or technical college.

Occupational/Vocational Training: Occupational, vocational, or job skill training provided by a community college and/or business, vocational/trade or technical school to prepare students for gainful employment in a recognized occupation, not leading to an academic degree or certification.

On-the-job Training: Training in specific job skills by a prospective employer. Generally the individual is paid during this training and will remain in the same or a similar job upon successful completion. Also include apprenticeship-training programs conducted or sponsored by an employer, a group of employers, or a joint apprenticeship committee representing both employers and a union.

Basic Academic Remedial or Literacy Training: Literacy training or training provided to remediate basic academic skills that are needed to function on the job in the competitive labor market.

Job Readiness Training: Training to prepare an individual for the world of work (e.g., appropriate work behaviors, getting to work on time, appropriate dress and grooming, increasing productivity).

Disability Related Augmentative Skills Training: Disability related augmentative skills training includes but is not limited to: orientation and mobility; rehabilitation teaching; training in the use of low vision aids; Braille; speech reading; sign language; and cognitive training/retraining.

Miscellaneous Training: Any training not recorded in one of the other categories listed, including GED or high school training leading to a diploma.

Job-Related Services: General note: Job-related services include job search assistance, job placement assistance, and on-the-job support services.

Job Search Assistance: Job search activities support and assist a consumer in searching for an appropriate job. Job search assistance may include help in resume preparation, identifying appropriate job opportunities, developing interview skills, and making contacts with companies on behalf of the consumer.

Job Placement Assistance: Job placement assistance is a referral to a specific job resulting in an interview, whether or not the individual obtained the job.

On-the-job Supports: Support services provided to an individual who has been placed in
employment in order to stabilize the placement and enhance job retention. Such services include job coaching, follow-up and follow-along, and job retention services.

Transportation Services: Transportation, including adequate training in the use of public transportation vehicles and systems, means travel and related expenses that are necessary to enable an applicant or eligible individual to participate in a VR service. Examples of transportation services/expenses include, but are not limited to:

a) Travel and related expenses for a personal care attendant or aide if the services of that person are necessary to enable the individual to travel to participate in any VR service;

b) Relocation expenses incurred by the individual in connection with a job placement that is a significant distance from the individual's current residence;

c) The purchase and repair of vehicles, including vans, but not the modification of these vehicles; and

d) Training in the use of public transportation vehicles and systems.

Maintenance: Maintenance means monetary support provided for those expenses such as food, shelter and clothing that are in excess of the normal expenses of the individual, and that are necessitated by the individual's participation in an assessment for determining eligibility and VR needs or while receiving services under an IPE. Examples of maintenance expenses include, but are not limited to:

a) cost of uniforms or other suitable clothing required for an individual's job placement or job seeking activities;

b) cost of short-term expenses, such as food and shelter, that are required in order for an individual to participate in assessment or vocational training at a site that is not within commuting distance of an individual's home;

c) initial one-time costs, such as security deposits or charges for the initiation of utilities, that are required in order for an individual to relocate for a job placement; and

d) costs of an individual's participation in enrichment activities related to that individual's training program.
Rehabilitation Technology: General note: Rehabilitation technology means the systematic application of technologies, engineering methodologies, or scientific principles to meet the needs of, and address the barriers confronted by, individuals with disabilities in areas that include education, rehabilitation, employment, transportation, independent living, and recreation. The term includes the following:

Rehabilitation Engineering Service: Rehabilitation engineering is the systematic application of engineering sciences to design, develop, test, evaluate, apply, and distribute technological solutions to problems confronted by individuals with disabilities in functional areas such as mobility, communications, hearing, vision, and cognition, and in activities associated with employment, independent living, education, and integration into the community.

Assistive Technology Devices: Assistive technology device means any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified or customized, that is used to increase, maintain, or improve the functional capabilities of an individual with a disability.

Assistive Technology Services: Assistive technology service is any service that directly assists an individual with a disability in the selection, acquisition, or use of an assistive technology device. Services may include:

a) evaluating the needs of an individual with a disability, including a functional evaluation of the individual in his/her customary environment;

b) purchasing, leasing, or otherwise providing for the acquisition by an individual with a disability of an assistive technology device;

c) selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing assistive technology devices;

d) coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;

e) training or providing technical assistance for an individual with a disability or, if appropriate, the family members, guardians, advocates, or authorized representatives of the individual; and

f) training or providing technical assistance for professionals (including individuals providing education and rehabilitation services), employers, or others who provide services to, employ, or are otherwise substantially
involved in the major life functions of individuals with disabilities to the extent that training or technical assistance is necessary for an individual with a disability to achieve an employment outcome.

**NOTE**: It is possible for these services to be classifiable under any of the other service categories.

**Personal Assistance Services**: General note: Personal assistance services are a range of services provided by one or more persons designed to assist an individual with a disability to perform daily living activities on or off the job that the individual would typically perform without assistance if the individual did not have a disability. The services must be designed to increase the individual's control in life and ability to perform everyday activities on or off the job.

Three distinct services that are considered personal assistance services are reader services, interpreter services, and personal attendant services. Further information on recording each of these services follows. Record only whether and which of these services were provided to the individual (e.g., if the same person provided both reader service and personal attendant service to an individual, indicate both services).

**Reader Services**: Reader services are for individuals who cannot read print because of blindness or other disability. Reader services include, in addition to reading aloud, transcription of printed information into Braille or sound recordings if the individual requests such transcription. Reader services are generally for individuals who are blind or deaf-blind, but may also include individuals unable to read because of serious neurological disorders, specific learning disabilities, or other physical or mental impairments.

**Interpreter Services**: Interpreter services are sign language or oral interpretation services for individuals who are deaf or hard of hearing and tactile interpretation services for individuals who are deaf-blind. Specially trained individuals perform sign language or oral interpretation. Also include here real-time captioning services for persons who are deaf or hard of hearing. Do not include language interpretation in this category, but in "other services".

**Personal Attendant Services**: Personal attendant services are those personal services that an attendant performs for an individual with a disability such as bathing, feeding, dressing, providing mobility and transportation, etc.
Technical Assistance Services: Technical assistance and other consultation services provided to conduct market analyses, to develop business plans, and to provide resources to individuals in the pursuit of self-employment, telecommuting and small business operation outcomes.

Information and Referral Services: Information and referral services are provided to individuals who need services from other agencies (through cooperative agreements) not available through the VR program.

Other Services: Use this category for all other VR services that cannot be recorded elsewhere. Included here are occupational licenses, tools and equipment, initial stocks and supplies. Medical care for acute conditions arising during rehabilitation and constituting a barrier to the achievement of an employment outcome is also included in this category.
REFERENCES


Shapiro, J. P. (1994). *No Pity: people with disabilities forging a new civil rights*


