Final Report

Transition to Work of Youth with Disabilities: An Analysis of Data from the Longitudinal Study of the Vocational Rehabilitation Services Program Database

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Abstract

Despite various school-to-work transition initiatives, the following persistent issues and problems regarding post-school outcomes for youth with disabilities remain: (a) poor graduation rates from high school, (b) low employment rates after high school, and (c) low post-secondary education participation (Blackorby & Wagner, 1996). Further, each year tens of thousands of young people under the age of 30 enter the Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI) programs and the majority of them never leave. In sum, young people with disabilities are not moving successfully from high school to post-secondary education or employment and, at an early age, are becoming dependent on public support for meeting their basic life needs. Given this situation, the employment of youth with disabilities who are SSI or SSDI recipients is one of the Social Security Administration's (SSA) highest priorities (Gerry, 2002).

A major limitation of the transition literature is the lack of reports during the mid-to-late 1990s related to employment outcomes for youth with disabilities (Wittenburg & Maag, 2002). In particular, an extremely limited amount of data is available that presents information related to the transition process and outcomes for special education students who are SSI recipients. To address the critical need for current and useful data on the transition to work of youth with disabilities, the purpose of this study was to use the Longitudinal Study of the Vocational Rehabilitation Services Program (LSVRSP) database to evaluate the transition to work process and outcomes for youth with disabilities. The research questions of interest in this study were as follows:

1. What are the relationships among the characteristics of transitional youth, their access to and receipt of vocational rehabilitation (VR) services, and their employment outcomes?
2. What are the relationships among VR agency organizational culture and resources, VR services, and employment outcomes for transitional youth?
3. What are the relationships among local environmental factors, VR services, and employment outcomes for transitional youth?
4. What are the relationships among the characteristics of transitional youth, VR services, contextual factors, and employment outcomes for transitional youth?

The population of interest in this study was youth with disabilities who were in process of transitioning from school to work. The sample in the proposed project consisted of those transitional youth with disabilities who were included in the LSVRSP database. For the purposes of this study, youth were defined as individuals who were 25.99 years of age or younger at time of application for VR services. Data analysis determined that a total of 2,508 individuals met this criterion for inclusion in the study sample. The findings that are reported are based on that group.

It is important to note that a potentially significant limitation of the LSVRSP database is that much data are missing, particularly when the focus is on a relatively small segment of the database population and/or on a small number of variables. Thus, the lack of statistically significant findings in this project is likely due, at least in part, to missing data. This situation suggests that researchers and policy-makers should proceed with caution when using the LSVRSP database to evaluate the results of this study and overall VR processes and outcomes.

Regarding Research Question 1, results indicated that a specific set of variables related to the characteristics of transitional youth and VR services were predictive of successful employment outcomes for youth with disabilities. The pattern of variables suggests that educational and VR services focused on assisting transitional youth with disabilities with attaining higher levels of reading achievement may facilitate effective VR processes and lead to positive work outcomes for youth. In addition, vocational preparation and career development services that promote vocational readiness and enhanced psychosocial functioning appear to be an important factors related to the employment development of youth with disabilities. As such, services such as career counseling and social skill development should be available for youth prior to and during the VR process. Findings related to Research Question 1 also suggest that programmatic efforts by the Social Security Administration, Rehabilitation Services Administration (RSA), and public schools to pursue high levels of educational and work-related goals and skills may enhance employment outcomes among youth with disabilities following the receipt of VR services.

Findings related to Research Question 2 indicated that the employment outcomes of transitional youth with disabilities can be enhanced by higher levels of VR agency organizational culture and organizational effectiveness. This finding suggests that efforts to improve VR system organizational performance may promote the career development of young people with disabilities. In addition, given that successful employment outcomes were more likely for youth if VR counselor education levels were higher and if VR counselors held national certification as a rehabilitation counselor (CRC), it is

important to attend to the qualifications and credentials of VR personnel who provide services to youth with disabilities. These findings provide evidence to support efforts designed to upgrade the knowledge, skills, educational levels, and credentials of the VR system personnel such as the Comprehensive System of Personnel Development (CSPD). The finding that the presence of the appropriate amount of client choice also was a significant predictor of successful employment outcomes indicates that informed consumer choice is a critical ingredient in the provision of effective VR services to transitional youth with disabilities. This finding provides evidence to support the various VR system informed choice and transition self-determination initiatives that have been developed and implemented during the past decade.

Study data related to Research Question 3 indicated that a combination of a specific set of local environmental factors and VR service-related variables increased the likelihood of a successful employment outcome for a transitional youth with a disability who received VR services. Results suggest that factors that may enhance employment outcomes for youth include higher levels of counselor control over case service funds, counselor focus on client needs and employment development, and lower caseload sizes for general caseload counselors. Combined, these counseling-related and case services process variables are factors that can be effectively managed within the VR system and, thus, should be closely attended to in relation to the provision of transition-related VR services to youth with disabilities. The availability of transportation both during the VR process and employment of youth with disabilities also appears to be a necessary ingredient for job success. In addition, results in this study provide evidence to support continued funding for specific VR-related employment programs such as Projects with

Industry, which appear to be a positive factor in promoting successful employment outcomes for youth with disabilities. Successful employment outcomes for youth with disabilities also were more likely to occur if services were provided in urban settings. This finding suggests that further delineation of those factors that facilitate effective VR processes and outcomes in urban areas and of those factors that may impede vocational success for youth with disabilities in rural areas is needed.

Research Question 4 was answered through the application of structural equation modeling using variables measuring characteristics of transitional youth, organizational culture, local environmental factors, and employment outcomes. Findings provided support for a revised version of the Transition to Work of Youth with Disabilities model. Results indicated that when combined, model constructs contribute to positive rehabilitation outcomes of youth with disabilities in unique ways. More specifically, output data illustrated that the characteristics of youth with disabilities have a direct and significant relationship with VR service-related variables, which, in turn, directly influence employment outcomes. This finding, combined with findings related to Research Questions 1 through 3, suggests that a specific pattern of demographic and career development factors related to youth and VR system processes can be assessed, modified, and enhanced in order to maximize employment outcomes. Further, while local environmental factors did not have a direct and statistically significant influence on VR services, they did relate significantly to employment outcomes. As such, VR system contextual factors must be considered, evaluated, and adjusted as necessary in order to facilitate positive rehabilitation outcomes for youth with disabilities. Finally, data in this study indicated that VR system organizational culture and effectiveness have direct and

significant relationships between both VR service-related variables and employment outcomes. This finding suggests that employment outcomes for youth with disabilities would be enhanced if resources were allocated toward continuing to enhance overall VR agency organizational quality.

Transition to Work of Youth with Disabilities:

An Analysis of Data from the Longitudinal Study of the

Vocational Rehabilitation Services Program Database

Statement of the Problem

Disability is not the experience of a minority of Americans. Rather, it is an experience that will touch most Americans at some point during their lives. Although progress has been made during the past decade to improve access to employment, public accommodations, commercial facilities, information technology, telecommunications services, housing, schools, and polling places, significant challenges remain for Americans with disabilities in realizing the dream of equal access to full participation in American society (Turnbull & Stowe, 2001). Indeed, the Harris surveys by the National Organization on Disability (National Organization on Disability, 2001) and numerous other studies have highlighted the following persistent obstacles:

- Americans with disabilities have a lower level of educational attainment than those without disabilities;
- Americans with disabilities are poorer and more likely to be unemployed than those without disabilities; and
- Too many Americans with disabilities remain outside the economic and social mainstream of American life.

The intent of the New Freedom Initiative (NFI) is to fulfill America's promise to Americans with disabilities by removing these obstacles (New Freedom Initiative, 2002). As per the NFI, people with disabilities want to be employed, educated, and participating citizens living in the community. It is the policy of the George W. Bush Administration

to work to ensure that all Americans have the opportunity to learn and develop skills, engage in productive work, choose where to live, and participate in community life. The NFI represents an important step in achieving these goals. It is designed to expand research in and access to assistive and universally designed technologies, further integrate Americans with disabilities into the workforce, and help remove barriers to participation in community life.

One of the major objectives of the NFI is to more fully integrate Americans with disabilities into the workforce. As reported by Martin Gerry, Deputy Commissioner of the Social Security Administration (SSA) Office of Disability and Income Security Programs, at the 2002 DRI Annual Symposium, one of the primary areas of focus regarding the employment of people with disabilities under the NFI is the transition of youth with disabilities to work (Gerry, 2002). The reasons for this policy emphasis include that despite advances in education, disability rights policy, the support of federal mandates, and increased funding of programs and initiatives that impact all youth, the post-school outcomes for far too many of our nation's youth with disabilities are still poor.

Poor post-school outcomes for youth with disabilities are reflected by several primary indicators. For example, despite various school-to-work transition initiatives, researchers have found the following persistent issues and problems regarding post-school outcomes for youth with disabilities: (a) poor graduation rates from high school, (b) low employment rates after high school, and (c) low post-secondary education participation (Blackorby & Wagner, 1996). Further, each year tens of thousands of young people under the age of 30 come onto the Supplemental Security Income (SSI) and

Social Security Disability Insurance (SSDI) programs and the majority of them never leave. In sum, young people with disabilities are not moving successfully from high school to post-secondary education or employment and, at an early age, are becoming dependent on public support for meeting their basic life needs. The current educational and employment status of America's youth with disabilities translates into untapped talent and potential and unfulfilled dreams (National Council on Disability/Social Security Administration [NCD/SSA], 2000).

Given this situation, the employment of youth with disabilities who are SSI or SSDI recipients is one of the SSA's highest priorities (Gerry, 2002). The Ticket to Work and Self-Sufficiency Program (Ticket to Work) is the cornerstone of the SSA's current effort to support the work aspirations of young people with disabilities. In 1999, Congress passed the "Ticket-to-Work and Work Incentives Improvement Act," which gives Americans with disabilities both the incentive and the means to seek employment. The purpose of the Ticket to Work program is to expand the universe of service providers and therefore enhance the range of choices available to SSDI and SSI disabled beneficiaries to assist them in finding, entering, and retaining self-supporting employment. Expanded work opportunities for youth with disabilities also will increase the likelihood that they will reduce or eliminate their dependency on SSDI and SSI cash benefits.

Significance of the Project

There was a dramatic increase in children and younger entrants to the SSI and SSDI programs from 1975 to 1993 that has resulted in an increase in the expected duration recipients remain in the programs (Social Security Administration, 1996).

While rates in children and younger entrants to SSDI and SSI programs since 1993 have not been as dramatic, there has been a slow and steady growth in the overall numbers of young entrants. Coupled with a miniscule 'return-to-work' rate, particularly among SSDI beneficiaries, this situation contributes to an increase in the number of unemployed people with disabilities. Unfortunately, despite numerous policy and program initiatives, there continues to be a lack of research direction regarding the provision of appropriate services, supports, and post-high school assistance to meet the educational and career development needs of teenagers and young adults with disabilities (Kosciulek, 2002; Kosciulek & Perkins, in press).

Current data are needed to provide information related to the combination of educational and vocational development services that promote successful employment outcomes for youth with disabilities. According to Marlene Simon, Associate Division Director, Research to Practice Division, Office of Special Education Programs, U.S. Department of Education, research is needed that delineates best practices models regarding what works in transition programming for youth with disabilities (Simon, 2002). In this manner, empirical data would guide the development and implementation of effective special education and vocational rehabilitation (VR) programs.

A major limitation of the transition literature is the lack of reports during the mid to late 1990s related to employment outcomes for youth with disabilities (Wittenburg & Maag, 2002). In particular, an extremely limited amount of data is available that presents information related to the transition process and outcomes for special education students who are SSI recipients. A series of studies is needed to fill major gaps in existing knowledge related to post-secondary school outcomes of youth with disabilities. In order

to ensure the success of new SSA policy initiatives such as the Ticket to Work, it is imperative that researchers and policy makers have a thorough understanding of the current state of school-to-work transitions of youth with disabilities.

Relevance to the Social Security Administration

Following review of the major longitudinal databases related to the employment status of young people with disabilities, Wittenburg and Maag (2002) concluded that the Longitudinal Study of the Vocational Rehabilitation Services Program (LSVRSP) database is the best resource available for obtaining information on the employment of youth with disabilities. To address the critical need for current and useful data on the transition to work of youth with disabilities, this project was designed to evaluate the process and outcome of transition to work utilizing the LSVRSP database. In this manner, this study addressed a key area of research identified by Simon (2002), Kohler and Chapman (1999), and Kosciulek and Perkins (in press), the impact of adult VR services on the employment of transitional youth with disabilities.

One of the highest priorities of the SSA is to enable youth with disabilities who are Social Security recipients to obtain and maintain competitive employment (Gerry, 2002). In an effort to contribute to this priority and the SSA goal of youth employment skill development, this project was designed to generate data that identify the most effective transition to work methods for youth with disabilities. In this manner, this study provides data useful for guiding the SSA Ticket to Work program and other transition to work of youth with disabilities initiatives. As such, this project has direct relevance to the priorities, policies, and programs of the SSA. The findings in this study will help the

SSA policy community and other stakeholders better understand the factors that contribute to the successful transition from school to work of youth with disabilities.

A significant amount of federal funding is being directed toward transition initiatives such as the Integrated Transition Planning Strategy programs that currently are being piloted in three states. These programs focus on the long-term process of assisting youth with disabilities with obtaining and maintaining employment and the implementation of new SSA program policies such as waiving and/or delaying disability re-determination at age 18 and the examination of recipient assets. The SSA envisions that the Integrated Transition programs will provide a model for effective practices and collaboration between SSA and VR and special education programs in the U.S. Department of Education (Gerry, 2002). Given that this project utilized the LSVRSP database, study results will supplement these efforts and guide SSA policy by providing data related to those VR system processes that are most effective in enabling the successful transition to work of youth with disabilities. In addition, study processes and results provide a model for linking SSA and RSA administrative data that enable the longitudinal tracking of the employment outcomes of youth with disabilities who are Social Security recipients.

Overview of the LSVRSP

As per the Rehabilitation Act of 1973, the LSVRSP was intended to assess the linkages between VR services and economic and non-economic outcomes for consumers with disabilities (Federal Register, 2000). The Congressional mandate included that the study would address factors related to attrition and completion of the VR program through which the services are provided and factors within and

outside the program affecting results. In addition, it was required that comparisons be made to contrast the experiences of persons who do and who do not obtain services (Pacinelli, 2002). Further, the LSVRSP was planned to cover the period beginning at the time of consumer application for services, through the eligibility determination and service provision processes, and a further period not less than two years after termination of services (Hayward & Schmidt-Davis, 2002).

VR Longitudinal Study Sampling and Data Collection Procedures

In response to the mandate in the Rehabilitation Act, the study tracked VR participation and post-VR experiences of a nationally representative sample of applicants and VR consumers for up to three years following exit from the program. The study's sample acquisition and data collection activities began in December 1994 and were completed in January 2000, with sample acquisition occurring over a two-year period and the tracking of study participants for three years (Hayward & Schmidt-Davis, 2002). The study implemented a multistage design that involved selection of a random sample (with probability proportional to size) of 40 local VR offices (located in 32 state VR agencies in a total of 30 states) and, between those offices, a sample of 8,818 applicants and current and former consumers of VR services. The study implemented a cohort design that involved randomly selecting 25 percent of the sample from the population of persons at application to VR, 50 percent of the sample from the population of persons who were already accepted for and receiving services, and 25 percent of the sample from the population of persons at or after they exited VR services.

Data collection procedures included computer-aided interviews with study participants, abstraction of data from consumers' case records, and mail surveys to VR

agencies and staff. A battery of baseline interviews conducted with each study participant at the time of entry into the study obtained information on work history, vocational interests and attitudes, independence and community integration, and consumer perspectives on VR participation. A follow-up interview administered for three subsequent years varied according to the individual's stage in the VR process at the time of interview. Records abstraction included consumer characteristics and detailed information on services. Records were abstracted when the consumer entered the study and quarterly until that person exited VR. Agency instruments included mail surveys of office managers in participating VR offices, counselors, and other office staff, as well as a state polices and procedures form. These instruments were administered at initiation and termination of the study's data collection activities, with annual updates from the local office manager surveys (Hayward & Schmidt-Davis, 2002; Pacinelli, 2002).

Limitations of the Longitudinal Study Research Design

In the VR Longitudinal Study, a two-stage, stratified random sampling research design was implemented that permitted national estimates of characteristics, services, and outcomes among persons with disabilities who applied for VR services, including persons who received VR services and those who applied for services but exited prior to receipt of services (Hayward & Schmidt-Davis, 2002; Pasternak, 2002). In reviewing the findings in the study's final reports and using the LSVRSP database for research purposes, it is important to be aware of the following limitations of this design:

1. The findings in the LSVRSP reflect the study's data collection period, which occurred between 1995 and the end of 1999; therefore, findings do not reflect

more recent changes in the VR program that may be having an effect on services and outcomes;

2. In instances where sample sizes are very small (e.g., less than one percent of the sample), findings should be viewed with caution. Small sample sizes may affect findings for groups in which the incidence of disability is small and for analyses that involve reporting of various characteristics in combination;
3. The Longitudinal Study was designed to provide national estimates of VR services and outcomes and does not provide estimates at the level of state VR agencies or local offices. No statements can be made about participants, services, or outcomes for individual state VR agencies or local VR offices; and
4. The LSVRSP was not experimental in nature and participants were not randomly assigned to specific services. Data were collected on participant characteristics and other variables of interest during the usual VR service provision process. Thus, cause and effect statements regarding the relationship between specific services and outcomes cannot be made (Hayward & Schmidt-Davis, 2002).

Purpose of the Study

The purpose of this study was to utilize the LSVRSP database to evaluate the transition to work process and outcomes for youth with disabilities.

Research Questions

The research questions of interest in this study were as follows:

1. What are the relationships among the characteristics of transitional youth, their access to and receipt of VR services, and their employment outcomes?

2. What are the relationships among VR agency organizational culture and resources, VR services, and employment outcomes for transitional youth?
3. What are the relationships among local environmental factors, VR services, and employment outcomes for transitional youth?
4. What are the relationships among the characteristics of transitional youth, VR services, contextual factors, and employment outcomes for transitional youth?

Condition of Award

In addition to the above purpose of the study and research questions, this project was contingent upon a specific condition of the award. This project award was contingent upon the following condition:

> "This study should determine which factors were most predictive of who ends up with VR services and why (e.g., local, environmental, State factors, mandatory order of selection)."

The most effective approach to address the above condition was to use the research methodology and protocols established by previous researchers who have analyzed data sets similar to those in the LSVRSP. The Rehabilitation Services Administration's (RSA) 911 case service data file closely mirrors the LSVRSP database. Therefore, the work of Capella (2002) and Wilson (2000) provided useful models for addressing the required condition. Similar to the required condition of award, these researchers have explored RSA-911 data files in an effort to compare various subgroups of the VR population in relation to acceptance rates, receipt of VR services, demographic characteristics such as race and education, and employment outcomes.

Conceptual Framework for the Study

The *Transition to Work of Youth with Disabilities (TWYD)* model, developed specifically for this project, served as the conceptual framework for this study.

Figure 1

Model of Transition to Work of Youth with Disabilities

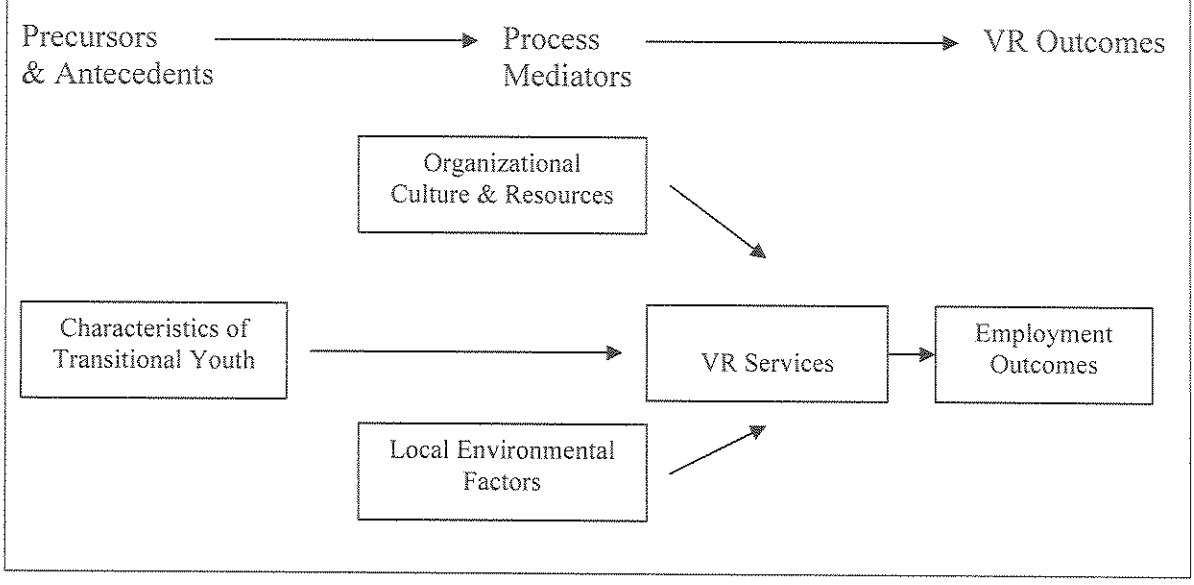


Figure 1, a visual depiction of the TWYD model, illustrates the following major tenet of the model:

> *Outcomes of VR services for transitional youth with disabilities are a function of the characteristics of transitional youth, VR agency organizational culture and resources, environmental factors affecting the local labor market, and the services that youth with disabilities receive, where outcomes are defined as: earnings, employment, other economic outcomes, consumer satisfaction, community integration, and other non-economic outcomes.*

Project Methodology

Data Source

The data source for the proposed project was the LSVRSP database. The database was accessed through the following DRI web address: *http://compaq.ncsa.uiuc.edu:8080/vrsp/*. The instruments used in the LSVRSP data collection procedures served as the instrumentation for the proposed project. The DRI LSVRSP website contains the data files, instrumentation, and data codebooks necessary for reliable, valid, and efficient data abstraction, analysis, summary, and reporting. The constructs of interest in this study included the characteristics of transitional youth, VR agency organizational culture and resources, local environmental factors, VR services, and employment outcomes for transitional youth with disabilities. Each of these constructs is described in the *Constructs of Interest* section of this report.

Project Sample

Data for this project were drawn from the database of the LSVRSP, a major study carried out by the Research Triangle Institute for the U.S. Department of Education. Data were accessed through the DRI website (http://compaq.ncsa.uiuc.edu:8080/vrsp/). In the LSVRSP, a two-stage, stratified, random probability sample design was used to select a nationally representative sample of VR applicants, active consumers, and consumers whose case service records had been closed. The final sample included 8,818 VR consumers from 40 local VR offices located in 32 different state VR agencies in a total of 30 states. For the interested reader, Hayward and Schmidt-Davis (2002), Kosciulek (2004), and Wadsworth and Kampfe (2004) provide detailed descriptions of the LSVRSP sampling and data collection procedures.

The population of interest in this study was youth with disabilities who were in the process of transitioning from school to work. The sample in the proposed project consisted of those transitional youth with disabilities who were included in the LSVRSP database. For the purposes of this study, youth were defined as individuals who were 25.99 years of age or younger at time of application for VR services. Data analysis and extraction determined that a total of 2,508 individuals, or 28% of the total LSVRSP database, met this criterion for inclusion in the study sample. The analyses that are reported are based on that group. It is important to note that the data reported for some demographic variables and constructs of interest may not equal the sample total of 2,508 due to data missing from the LSVRSP database.

Of the 2,508 transitional youth with disabilities included in the sample, 1,429 (57%) were men and 1,079 (43%) were women. The age at application for VR services of the 2,508 transitional youth ranged from 13.91 years to 25.99 years (upper limit as per study sample inclusion criteria) with a mean of 20.17 years (SD = 2.73 years). Of the individuals in the sample, 2,030 (81%) were white, 415 (16%) were African-American, 24 (1%) were Asian/Pacific Islander, and 11 (<1%) were American Indian/Alaskan Native. A total of 241 individuals, or 9.6% of the total sample, were identified as being of Hispanic origin. Regarding the marital status of the 2,508 transitional youth, 2,259, or 90%, were reported to be never married, 157 (6.3%) were married, 45 (1.8%) were divorced, and 35 (1.4%) were separated. The number of years of education completed at entry to VR for the individuals in the transitional youth sample ranged from 2.00 years to 19.00 years, with a mean of 11.36 years (SD = 1.55).

Data were available related to reading achievement level on 1,253 individuals, or 50% of the total sample. For these individuals, reading achievement levels were reported to range from the 1.0 grade level to the 16.0 grade level with a mean grade level of 6.67 (SD = 3.70). Data were available related to arithmetic achievement level on 1,222 individuals, or 48% of the total sample. For these individuals, arithmetic achievement levels were reported to range from the 1.0 grade level to the 16.0 grade level with a mean grade level of 6.38 (SD = 2.72). Regarding the severity of the primary disability of the transitional youth in the study sample, 1,257 (50%) were identified as being severely disabled, 736 (29%) were identified as being most severely disabled, and 482 (19%) were identified as not severely disabled. The most frequent primary disability types of the individuals in the project sample were as follows: learning disability (n=523, 20.8% of total sample), mental retardation (n=459, 18.3% of total sample), and orthopedic – except amputation (n=443, 17.6% of total sample). Of the 2,508 transitional youth in the sample, a total of 1,206 (48%) were identified as being a student at the time of entry to VR services and 1,293 (51%) were identified as not being a student at time of entry to VR services.

Finally, a total of 910 transitional youth (36.3% of the total sample) were reported to receive financial assistance at the time of entry into the LSVRSP; and for 1,592 individuals (63.5%) there was no indication of receipt of financial assistance at the time of entry into the LSVRSP. The demographic characteristics of the study sample are presented in further detail in Table 1.

Table 1

Sample Demographic Characteristics (N=2,508)

Age at Application

The age at application of the transitional youth identified in the LSVRSP database ranged from 13.91 years to 25.99 years (upper limit as per study sample inclusion criteria) with a mean of 20.17 years (SD = 2.73 years).

Gender

In the total sample of 2,508 individuals, 1429 (57%) were men and 1079 (43%) were women.

Race

Of the individuals in the sample, 2030 (81%) were white, 415 (16%) were African-American, 24 (1%) were Asian/Pacific Islander, and 11 (<1%) were American Indian/Alaskan Native.

Hispanic Origin

A total of 241 individuals or 9.6% of the total sample were identified as being of Hispanic origin.

Marital Status

Regarding the marital status of the 2,508 transitional youth, 2,259, or 90%, were reported to be never married, 157 (6.3%) were married, 45 (1.8%) were divorced, and 35 (1.4%) were separated.

Number of Years of Education Completed at Entry

The number of years of education completed at entry in to vocational rehabilitation for the individuals in the transitional youth sample ranged from 2.00 years to 19.00 years, with a mean of 11.36 years (SD = 1.55).

Highest Degree Obtained at Entry

The highest degree obtained at entry to vocational rehabilitation for the individuals in the transitional youth sample included 1,238 individuals (49% of the total sample) with a high school diploma or GED, 26 individuals (1%) with a 2-year associates degree, 22 individuals (<1%) with a 4-year baccalaureate degree, and 2 individuals with masters

degrees. It is important to note that for this variable, there was missing data on 1,220 individuals which equals 48% of the total sample.

Achievement Level – Reading

Data were available related to reading achievement level on 1,253 individuals, or 50% of the total sample. For these individuals, reading achievement levels were reported to range from the 1.0 grade level to the 16.0 grade level with a mean grade level of 6.67 (SD = 3.70).

Achievement Level – Arithmetic

Data were available related to arithmetic achievement level on 1,222 individuals, or 48% of the total sample. For these individuals, arithmetic achievement levels were reported to range from the 1.0 grade level to the 16.0 grade level with a mean grade level of 6.38 (SD = 2.72).

Severity of Primary Disability

Regarding the severity of the primary disability of the transitional youth in the study sample, 1,257 (50%) were identified as being severely disabled, 736 (29%) were identified as being most severely disabled, and 482 (19%) were identified as not severely disabled.

Primary Disability Type

The primary disability types of the individuals in the project sample are as follows:

Disability Type	***n***	***% of total sample***
Learning Disability	523	20.8
Mental Retardation	459	18.3
Orthopedic – except amputation	443	17.6
Other Mental and Emotional	229	9.1
Psychiatric Disability	205	8.2
Other Physical	171	6.8
Hearing Impairments	146	5.8
Visual Impairments	74	2.9
Substance Abuse/Dependence	70	2.8
Epilepsy	53	2.1
Asthma/Hay Fever	46	1.8
Traumatic Brain Injury	40	1.6
Diabetes Mellitus	27	1.1

Amputation	11	<1

Student Status at Entry

Of the 2,508 transitional youth in the sample, a total of 1,206 (48%) were identified as being a student at the time of entry to vocational rehabilitation services and 1,293 (51%) were identified as not being a student at time of entry to vocational rehabilitation services.

Source of Referral

Source of Referral	***n***	***% of total sample***
Educational Institution	1,163	46
Other Agency	324	13
Self	298	12
Family/Friend	283	11
Hospital/Physician	226	9
Other	105	4
Rehabilitation Facility	83	3
Residential Institution	15	<1

Current Status in Vocational Rehabilitation

The table below provides data related to the VR status of the individuals in the project sample at the time of the initiation of the LSVRSP.

VR Status	***n***	***% of total sample***
IPE completed	1,294	51.6
Closed rehabilitated	420	16.7
Applicant	248	9.9
Closed after IPE initiated – not rehabilitated	178	7.1
IPE development	153	6.1
Closed before IPE initiated – not rehabilitated	125	5
Closed from referral, applicant, or extended evaluation	62	2.5
Service interrupted	12	<1
Extended evaluation	10	<1
Post-employment services	6	<1

Evidence of Current Receipt of Financial Assistance

A total of 910 transitional youth (36.3% of the total sample) were reported to receive financial assistance at the time of entry into the LSVRSP; and for 1,592 individuals (63.5%) there was no indication of receipt of financial assistance at the time of entry into the LSVRSP.

Primary Source of Support

For the 2,508 individuals in the project sample, the primary sources of financial support were indicated as follows:

Primary source of support	***n***	***% of total sample***
Self – earnings	44	1.8
Family or friends	267	10.6
Benefits	597	23.8
Missing data	1600	63.8

Sources of Financial Support

In the LSVRSP, data were collected related to the types of financial support individuals were receiving at the time of the study. Below are the summaries of the numbers and corresponding sample percentages of individuals receiving various types of financial support. It is important to note that in the LSVRSP database that for these financial support variables there are a significant number of blank data cells, or missing data.

Source of Support		
Supplemental Security Income - Disabled	n	% of total sample
Yes	479	19.1
No	416	16.6

Source of Support		
Social Security Disability Insurance	n	% of total sample
Yes	139	5.5
No	738	29.4

Source of Support		
Supplemental Security Income - Blind	n	% of total sample
Yes	28	1.1

No	855	34.1

Source of Support		
Supplemental Security Income – General	n	% of total sample
Yes	83	3.3
No	791	31.5

Source of Support		
Aid to Families with Dependent Children	n	% of total sample
Yes	74	3
No	797	31.8

Source of Support		
Family and Friends	n	% of total sample
Yes	228	9.1
No	658	26.2

Note: The total sample size for individual demographic variables may not equal the total study sample size due to missing data.

Constructs of Interest

Characteristics of Transitional Youth. The VR system is not an entitlement program, but serves eligible youth with disabilities in an environment of funding and service constraints. Demographic characteristics of interest related to youth in transition from school to work that participate in the VR program include age, sex, race, education level, and disability type and significance. Additional characteristics relevant to the purpose of this study included functional independence level, work history, vocational interests and motivation, and receipt of financial assistance such as SSI and SSDI. Summary and analysis of these various characteristics of transitional youth in the context

of the TWYD model, in part, yielded data for answering the research questions of interest in this study.

Organizational Culture and Resources. The VR program is comprised of 80 general, combined, and state VR agencies serving individuals with blindness, each with its own resources, internal organization, management philosophy, and organizational culture. Resources include fiscal resources available for purchase of services, a critical mass of service delivery professionals, and the availability and accessibility of service providers or vendors (Hayward & Schmidt-Davis, 2002). Given that VR agency organizational culture is a factor that influences both the quality of services and resulting service outcomes, data related to organizational climate that was available from the LSVRSP database was retrieved and analyzed.[1] Specific organizational climate variables of interest included management commitment to quality, extent of barriers to employee participation and teamwork, effectiveness of communication between supervisors and employees, practices in numerical goals and quotas for employees, and agency-wide training and education in quality.

Local Population and Economic Environment. Within the state-federal VR program, services are delivered under widely varying conditions. Localities vary in their urban or rural nature, in the availability of jobs, and even in the prevalence of work disability in the state population (Hayward & Schmidt-Davis, 2002). In examining the impact of the VR program on transitional youth with disabilities, it was important to evaluate the relationship among external factors that may affect services or likelihood of

[1] It is important to note that the constructs of interest were defined by variables in the existing LSVRSP database and that the researcher did not develop further instruments/scales/measures.

successful employment outcomes. Thus, external conditions were included in the TWYD model.

VR Services. In the present study, services were broadly defined to include the VR process for a youth in transition, including work with the counselor from application through exit from VR and post-employment services. Service variables of interest available in the LSVRSP database ranged from equipment, adaptive devices, supplies, and professional and other services directly paid for by the agency through purchase of services, to internal resources such as counselor time, assessor time, and other staff time and effort directly spent with the consumer. It is important to note that in the LSVRSP, much more detailed service-related data were gathered than are normally reported in the RSA-911 system. Thus, this project enabled the delineation of the influence of VR agency culture and resources and local environmental factors on VR services, as well as the analysis of the relationship between specific services and employment outcomes.

Employment Outcomes. A range of economic and non-economic outcomes is relevant to the study of transitional youth with disabilities. The primary economic measures of outcome relevant in this study included employment and earnings at exit from VR services and at one, two, and three years following closure. In addition to measures of income and job retention, the non-economic outcome variables of interest included independent living, community integration, satisfaction with employment, and satisfaction with VR services. Combined, these economic and non-economic factors served as valid measures of outcome of the VR program for transitional youth with disabilities (Kosciulek, 2004).

Study Procedure

Upon notification of award, the PI initiated procedures for obtaining approval for conducting the project from the Michigan State University-University Committee on Research Involving Human Subjects (UCRIHS). Initial feedback from UCRIHS with required revisions was received. Revisions to the UCRIHS application were made and final human subjects' approval of this project was obtained on January 11, 2004. A letter from UCRIHS that indicated human subjects' approval of the project was submitted electronically to the DRI.

During the next phase of this project, staff conducted a review of the literature on the transition to work of youth with disabilities. Approximately 50 sources of literature related to empirical and conceptual aspects of the transition to work of youth with disabilities were reviewed in-depth. As a result of this review, an annotated bibliography of the current literature that included 25 primary, refereed, scholarly references dated 1998 or more recent was developed. The annotated bibliography was submitted electronically to the DRI.

The literature review and annotated bibliography also were used for the foundation of the development of a book chapter. The chapter, which was submitted to the DRI electronically, is referenced as follows:

Kosciulek, J. F., & Perkins, A. (in press). Transition to work and adult life of youth with disabilities: A counseling-based case management approach. In F. Chan, M. J. Leahy, & J. Saunders (Eds.), *Healthcare & disability case management* (2nd ed.). Lake Zurich, IL: Vocational Consultants Press.

The purpose of the chapter was to extend and expand the counseling and case management repertoires of school and vocational rehabilitation personnel to include those skills and techniques necessary to effectively serve youth with disabilities during their transition from school to work and adult life. To this end, the chapter initially addresses policy perspectives related to the status of young people with disabilities in American society. Next, the major career and adult life challenges encountered by youth with disabilities are presented. Readers are then provided with a description of counseling intervention strategies that may be particularly effective when working with youth with disabilities in the transition process. These strategies include social support development, family systems counseling, and facilitating self-determination. In the next section, case management approaches potentially useful for application in the process of transition from school to work and adult life among youth with disabilities are discussed. The final section of the chapter presents a case study for enabling reader application of the counseling strategies and case management methods described in this chapter.

The annotated bibliography and chapter were used to connect the findings in the present study directly to the most current conceptual and empirical transition literature. In this manner, results relate to current programs and policies designed to assist youth with disabilities with successful transition to the world of work.

Preliminary data related to transitional youth with disabilities was extracted from the LSVRSP database. This involved using the data files, instruments, and codebooks available on the DRI website. Preliminary data screening procedures were conducted according to the guidelines reported by Tabachnik and Fidell (1996) and involved the identification of potential anomalies in the data (e.g., outliers, inequality of variances)

that would negatively affect reliable analysis. After data extraction, screening, and verification, the "Transition to Work of Youth with Disabilities" database included 2,508 individuals who were 25.99 years of age or younger at time of application for VR services.

Initial data analysis was conducted related to answering the research questions of interest in this project. These analyses involved identification of the variables of interest. Exploration of the database included efforts to locate, screen, and clean usable data on the following variables: (a) characteristics of transitional youth including demographic variables such as age, gender, marital status, and disability type, (b) organizational culture and resources including variables such as organizational effectiveness, organizational barriers, numerical goals and quotas for employees, and agency training and education in quality, (c) local environmental factor variables such as local economic conditions, (d) types, cost, and quantity of vocational rehabilitation services received, and (e) employment outcome variables including such variables as wages, job satisfaction, workplace supports, community integration, and quality of life. The characteristics of transitional youth were identified and summarized in detail by specific variables. Summaries of the demographic, case service process, and outcome variables related to the study sample were conducted.

Statistical Analysis

The statistical analysis plan for this study involved a series of developmental steps in an effort to directly address the purpose of the study and answer the research questions of interest in this project. These steps proceeded in planned phases from simple to more complex analytic procedures. The research design for the proposed project was a causal-

comparative, ex post facto design. This design provided the means by which the investigator could examine how specific predictor variables (i.e., characteristics of transition youth, VR agency organizational culture and resources, local environmental factors, and VR services) affect the criterion variable of interest – the employment outcomes of transitional youth with disabilities. A causal-comparative design enabled the valid examination of the relationship between conditions that have already occurred (i.e., presence of a disability, provision of VR services) to subsequent results (i.e., economic and non-economic outcomes for youth with disabilities).

The first step in the statistical analysis plan involved the extracting of preliminary data related to transitional youth with disabilities. This step involved using the data files, instruments, and codebooks on the DRI LSVRSP website to conduct accurate and efficient extraction of data related to youth in transition. Following data extraction, preliminary data screening procedures were conducted in accordance with the guidelines reported by Tabachnik and Fidell (1996). Data screening procedures involved the identification of potential anomalies in the data (e.g., outliers, inequality of variances) that would negatively affect reliable analysis. Further, raw data was examined for adherence to statistical assumptions such as multivariate normality. In addition, descriptive statistics and frequency analyses were conducted on all variables of interest. Following completion of data extraction, screening, and cleaning steps, a "Transition to Work of Youth with Disabilities" database was established. This database was used as the final data set for use in conducting the statistical analyses necessary for answering the research questions of interest in the proposed project.

The next statistical analysis procedure was to conduct preliminary data analysis to gain full understanding of the youth with disabilities database by exploring the data through descriptive statistic, frequency count, and crosstab procedures. Given the detailed nature of the LSVRSP database, it is at this point that data fields were collapsed to create the variables of interest in this study. Correlation procedures were conducted to identify the level of relationship between the primary variables of interest in each research question as well as detect potential multi-collinearity issues present in the data. More advanced multivariate statistical analyses were then conducted to analyze and summarize data in relation to answering the research questions of interest in this study. These analytic techniques are described below.

Logistic regression (LR) was used to answer Research Questions 1, 2, and 3. LR is useful for developing a predictive equation that is a combination of the predictor variables in the analysis (Tabachnick & Fidell, 1996). LR analyzes the relationship between multiple predictor variables and a single criterion variable. LR enables the prediction of a discrete outcome, such as a successful rehabilitation employment outcome, from a set of variables that may be continuous, discrete, dichotomous, or a mix. The data of interest in the LSVRSP database represents a mix of continuous, discrete, and dichotomous variables. It is also important to note that, since it is based on estimation procedures that do not assume multivariate normality, LR is an effective technique to use for reliably predicting a categorical outcome variable such as employment status (i.e., employed or not employed).

In real-world applied research such as the LSVRSP, multivariate normality is difficult to achieve in a data set. Thus, it is important to note that LR is especially useful

when the distribution of responses on criterion variables is expected to be nonlinear with one or more of the criterion variables. Such is the expected case with the multiple economic and non-economic outcomes evaluated in this study. As a result, LR was the most appropriate technique for evaluating the relationship between the predictor variables in Research Questions 1, 2, and 3 and the outcome variable of employment outcome. Data were analyzed using the SPSS 11.5 statistical software Logistic Regression technique.

Research Question 4 was answered through the application of structural equation modeling (SEM). As can be seen in the TWYD model in Figure 1, multiple relationships are hypothesized to exist between the characteristics of transitional youth, VR agency organizational culture and resources, local environmental factors, VR services, and employment outcomes. SEM was used to simultaneously evaluate the relationships between the model constructs and employment outcomes. SEM is a statistical methodology that takes a hypothesis testing (i.e., confirmatory) approach to the multivariate analysis of a structural theory bearing on some phenomenon (Byrne, 2001). It is appropriate to use whenever models of relations among variables need to be estimated and tested. Further, given that SEM is a method for testing a specified theory about relations between constructs (Bollen & Long, 1993), it was identified as the most appropriate statistical technique for testing the hypothesized structure of the TWYD model.

The term *structural equation modeling* conveys two important aspects of the procedure: (a) that the causal processes under study are represented by a series of structural (i.e., regression) equations, and (b) that these structural relations can be

modeled pictorially to enable a clearer conceptualization of the theory under study (Byrne, 2001). A hypothesized model such as the TWYD can be tested statistically in a simultaneous analysis of the entire system of variables to determine the extent to which it is consistent with the data. If goodness of fit is adequate, the model argues for the plausibility of postulated relations among the variables; if it is inadequate, the tenability of such relations is rejected. In addition to adequacy of fit, structural models are supported if relevant structural coefficients between latent variables are statistically significant and in the predicted direction (Bollen & Long, 1993). With SEM, covariance structure analysis allows for the breakdown of correlations among variables into estimates of the strength of relationships (i.e., parameter estimates) among constructs in a model system. In this manner, SEM attempts to isolate the separate contributions to a criterion (dependent) variable (the effect) made by a set of predictor (independent) variables (the causes). Figure 1 in Appendix A illustrates the hypothesized TWYD structural model that was tested in this study. Data were analyzed through SEM using the AMOS 4.0 statistical software (Arbuckle, 1999).

Results

Findings Related to Research Question 1

What are the relationships between the characteristics of transitional youth, their access to and receipt of VR services, and their employment outcomes?

As shown in Table 2, logistic regression analysis was used to estimate the probability of a successful employment outcome following the receipt of VR services from variables measuring the characteristics of transitional youth and VR services.

Table 2

Summary of Logistic Regression Analysis Predicting Employment Outcomes from Characteristics of Transition Youth and Vocational Rehabilitation Services

Variables	*ß*	*SE*	*Odds ratio*
Characteristics of Transitional Youth			
Age at Time of Application for VR Services	-0.01	0.04	0.52
Gender	0.23*	0.42	1.07
Race	0.03	0.05	0.47
Marital Status	-0.09	0.06	0.33
Level of Education	0.13	0.28	0.65
Reading Achievement Level	0.37*	0.40	0.94
Arithmetic Achievement Level	0.28	0.19	0.76
Severity of Primary Disability	0.12	0.07	0.51
Disability Type	0.33*	0.22	0.93
Receipt of SSDI	-0.25*	0.35	1.62
Receipt of SSI-Disabled	-0.38*	0.07	1.10
Vocational Readiness	0.50*	0.43	1.21
Career Oriented Values	-0.08	0.04	0.45
Psychosocial Functioning	0.39*	0.86	2.03
VR Service-Related Variables			
VR counselor interest, attention, and concern for needs	0.29	0.45	0.60

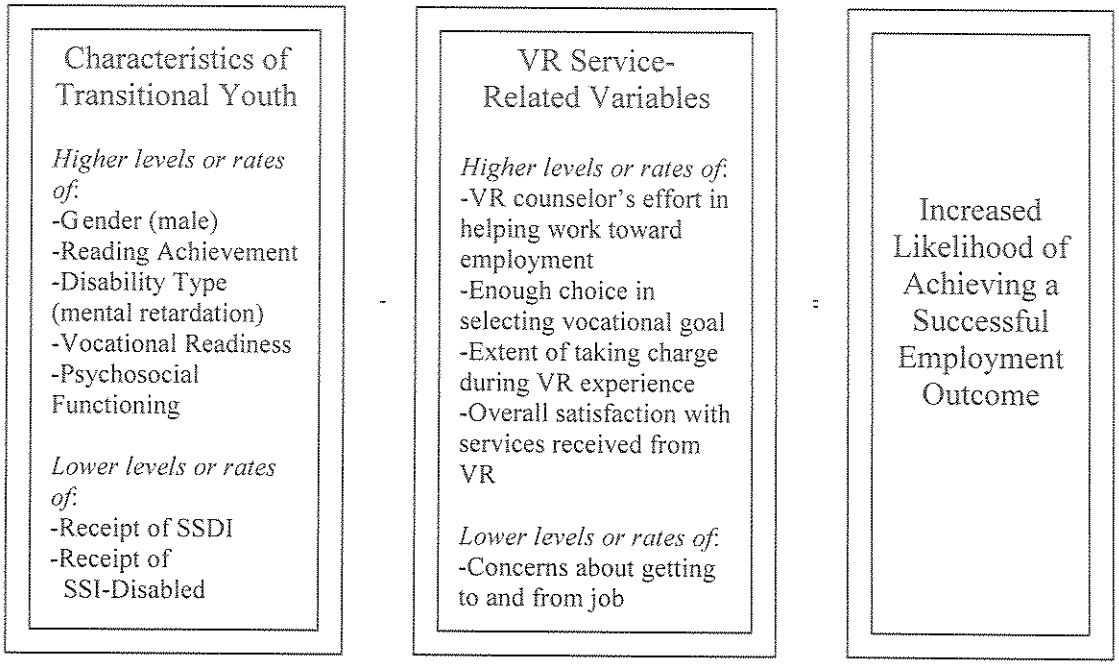
Length of time needed to determine eligibility for services	-0.04	0.30	0.46
VR counselor's effort in helping work toward employment	0.29*	0.19	1.34
VR counselor help you understand available service providers	0.13	0.56	0.67
Satisfaction with choice of available services	-0.14	0.23	0.52
Enough choice in selecting vocational goal	0.44*	0.31	1.01
Extent of taking charge during VR experience	0.38*	0.11	1.55
Extent VR services met your needs	-0.16	0.38	0.61
Services help become prepared for employment	0.08	0.98	0.54
Quality of VR services	0.19	0.43	0.12
Overall satisfaction with services received from VR	0.74*	0.75	2.48
Level of difficulty getting to and from service locations	0.11	0.46	0.36
Concerns about getting to and from job	-0.95*	0.56	1.18

*$p < .05$

As shown in Figure 2, logistic regression analysis revealed a number of characteristics of transitional youth and VR service-related variables that significantly influenced the achievement of a successful employment outcome. The overall predictive model was statistically significant (model $X^2 = 50.11$, df = 26, $p<.001$). This model achieves a level of prediction that is moderate, accounting for nearly 12 percent of the variance in employment outcomes ($R^2 = .1168$). As per Figure 2, 12 of the predictor variables were significantly related to the likelihood of achieving a successful employment outcome.

Figure 2

Prediction of Likelihood of Achieving a Successful Employment Outcome Following the Receipt of VR Services from Variables Measuring Characteristics of Transitional Youth and VR Service-Related Variables



There was an increased likelihood of achieving a successful employment outcome for a transitional youth with a disability who received VR services if the individual was male, had a higher reading achievement level, had a disability type of mental retardation, and had higher levels of vocational readiness and psychosocial functioning. In addition, a successful employment outcome was more likely to occur if the youth with a disability did not receive SSDI or SSI-Disabled benefits. VR service-related variables predictive of a successful employment outcome included higher levels of (a) VR counselor effort in helping a youth with a disability work toward employment, (b) choice in selecting a vocational goal, (c) taking charge during VR experience, and (d) overall satisfaction with services received from VR. Finally, lower levels of concerns about getting to and from a

job also were related significantly to successful employment outcomes for transitional youth with disabilities.

Findings Related to Research Question 2

What are the relationships between VR agency organizational culture and resources, VR services, and employment outcomes for transitional youth?

As indicated in Table 3, logistic regression was used to estimate the probability of a successful employment outcome for transitional youth with disabilities following the receipt of VR services from variables measuring organizational culture and resources and VR services.

Table 3

Summary of Logistic Regression Analysis Predicting Employment Outcomes from Organizational Culture Resources and Vocational Rehabilitation Services

Variables	***β***	***SE***	***Odds ratio***
Organizational Culture and Resources			
Organizational Culture	0.23*	0.41	0.91
Organizational Effectiveness	0.36*	0.42	1.15
Number of Years VR Counselor Worked at State VR Agency	-0.02	0.09	0.46
Level of VR Counselor Education	0.73*	0.08	1.68
VR Counselor Certification as a Rehabilitation Counselor (CRC) status	0.63*	0.27	1.65
VR Counselor Disability Status	0.37*	0.40	0.94
Caseload Size	0.28	0.19	0.76

Amount of Client Choice	0.62*	0.36	1.53
Enough Time to Spend with Clients	-0.02	0.49	0.68
Service Availability	-0.03	0.35	1.62
Factors Influencing Service Provision	-0.45*	0.19	2.50
VR Service-Related Variables			
VR counselor interest, attention, and concern for needs	0.06	0.89	0.32
Length of time needed to determine eligibility for services	-0.23*	0.56	2.37
VR counselor's effort in helping work toward employment	0.37*	0.17	1.64
VR counselor help you understand available service providers	0.17	0.45	0.67
Satisfaction with choice of available services	0.19	0.03	0.27
Enough choice in selecting vocational goal	0.77*	0.14	2.99
Extent of taking charge during VR experience	0.38*	0.11	1.55
Extent VR services met your needs	-0.16	0.38	0.61
Services help become prepared for employment	0.08	0.98	0.54
Quality of VR services	0.67*	0.13	1.12
Overall satisfaction with services received from VR	0.84*	0.76	1.55
Level of difficulty getting to and from service locations	0.07	0.69	0.47
Concerns about getting to and from job	0.15	0.64	0.77

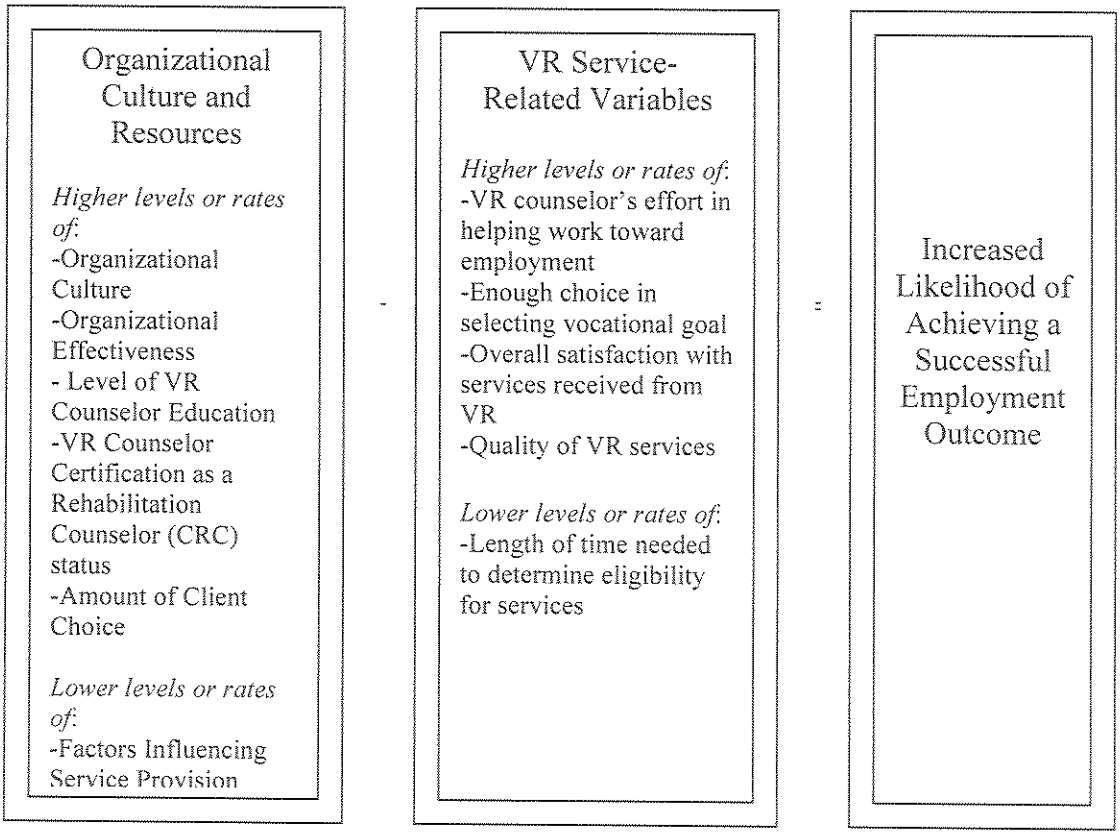
*$p < .05$

As shown in Figure 3, logistic regression analysis revealed a number of organizational culture and resource and VR service-related variables that significantly influenced the achievement of a successful employment outcome. The overall predictive

model was statistically significant (model $X^2 = 76.03$, df = 23, $p<.005$). This model achieves a level of prediction that is moderate, accounting for nearly 16 percent of the variance in employment outcomes ($R^2 = .1553$). As per Figure 3, 11 of the predictor variables were significantly related to the likelihood of achieving a successful employment outcome.

Figure 3

Prediction of Likelihood of Achieving a Successful Employment Outcome Following the Receipt of VR Services from Variables Measuring Organizational Culture and Resources and VR Service-Related Variables



There was an increased likelihood of achieving a successful employment outcome for a transitional youth with a disability who received VR services if higher levels of organizational culture and organizational effectiveness existed. Further, successful

employment outcomes were more likely for youth if VR counselor education levels were higher and if VR counselors held national Certified Rehabilitation Counselor (CRC) certification. The presence of the appropriate amount of client choice also was a significant predictor of successful employment outcomes. Finally, lower rates of factors influencing service provision such as federal and state statutory changes, changes in VR funding levels, and changes in the types of jobs available were related to youth with disabilities achieving successful employment.

In combination with organizational culture factors, VR service-related variables predictive of successful employment outcomes included higher levels of (a) VR counselor effort in helping a youth with a disability work toward employment, (b) choice in selecting a vocational goal, (c) overall satisfaction with services received from VR, and (d) the quality of VR services. A shorter length of time needed to determine eligibility for services also was related significantly to successful employment outcomes for transitional youth with disabilities.

Findings Related to Research Question 3

What are the relationships between local environmental factors, VR services, and employment outcomes for transitional youth?

As per Table 4, logistic regression was used to estimate the probability of a successful employment outcome for transitional youth with disabilities following the receipt of VR services from variables measuring local environmental factors and VR services.

Table 4

Summary of Logistic Regression Analysis Predicting Employment Outcomes from Local Environmental Factors and Vocational Rehabilitation Services

Variables	*β*	*SE*	*Odds ratio*
Local Environmental Factors			
VR agency operating under an Order of Selection	0.21	0.05	0.61
Average caseload size for general caseload counselors	-0.73*	0.41	1.69
Administrative expenditures	0.24	0.97	0.36
Number of clients served	-0.28	0.87	0.43
Counselor control over case service funds	0.39*	0.02	1.64
Total case service budget	0.12	0.30	0.55
Type of area served by VR office (e.g., urban, rural)	0.82*	0.18	2.75
Population of area served by VR office	0.01	0.06	0.42
Availability of transportation for persons with disabilities	0.61*	0.08	1.92
Lack of transportation influences client VR success	-0.26	0.34	0.87
Scarcity of rehabilitation service providers	0.44	0.05	0.40
Number of job opportunities in VR office service area	-0.87*	0.11	1.23
Availability of resources to assist clients in securing employment	0.57*	0.67	2.86
Monetary or other incentives for counselors to reach performance goals	-0.13	0.48	0.71
VR Service-Related Variables			
VR counselor interest, attention, and concern for needs	0.89*	0.05	2.30
Length of time needed to determine eligibility for services	0.14	0.20	0.21

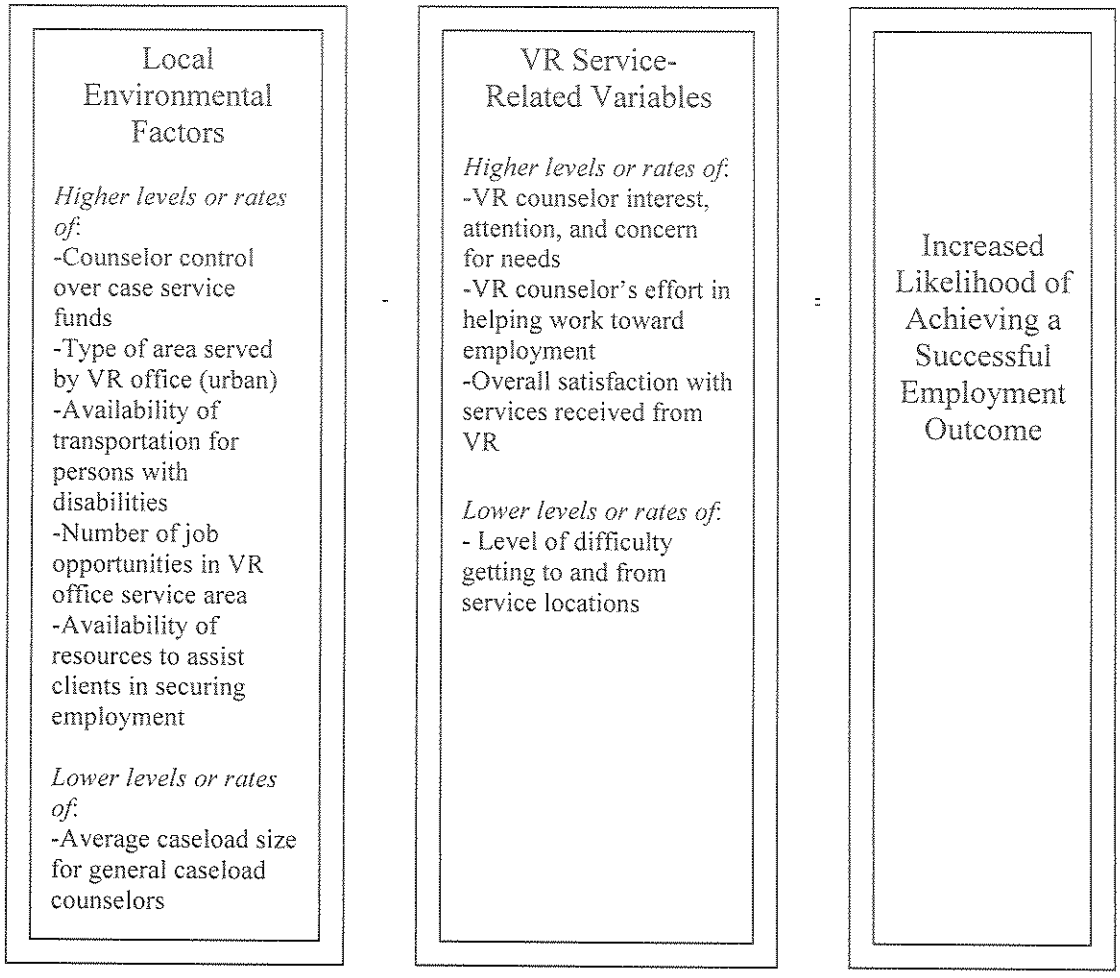
VR counselor's effort in helping work toward employment	1.03*	0.46	1.45
VR counselor help you understand available service providers	0.12	0.06	0.27
Satisfaction with choice of available services	0.26	0.83	0.61
Enough choice in selecting vocational goal	0.13	0.91	0.66
Extent of taking charge during VR experience	0.34	0.16	0.65
Extent VR services met your needs	0.28	0.98	0.59
Services help become prepared for employment	0.07	0.31	0.39
Quality of VR services	0.38	0.67	0.44
Overall satisfaction with services received from VR	0.67*	0.57	1.84
Level of difficulty getting to and from service locations	-1.13*	0.87	1.62
Concerns about getting to and from job	0.39	0.18	0.68

*$p < .05$

As shown in Figure 4, logistic regression analysis revealed a number of local environmental factors and VR service-related variables that significantly influenced the achievement of a successful employment outcome. The overall predictive model was statistically significant (model $X^2 = 61.45$, df = 26, $p<.01$). This model achieved a level of prediction that was low, accounting for approximately 8 percent of the variance in employment outcomes ($R^2 = .0782$). As per Figure 4, 10 of the predictor variables were significantly related to the likelihood of achieving a successful employment outcome.

Figure 4

Prediction of Likelihood of Achieving a Successful Employment Outcome Following the Receipt of VR Services from Variables Measuring Local Environmental Factors and VR Service-Related Variables



There was an increased likelihood of achieving a successful employment outcome for a transitional youth with a disability who received VR services given the presence of higher levels of counselor control over case service funds, transportation for persons with disabilities, an increase in the number of job opportunities in VR office service area during the past 5 years, and the availability of resources to assist clients in securing employment (e.g., Projects with Industry). Successful employment outcomes also were more likely to occur in urban VR service areas and if average caseload sizes for general caseload counselors were lower.

When combined with local environmental factors, VR service-related variables predictive of successful employment outcomes included higher levels of (a) VR counselor effort in helping a youth with a disability work toward employment, (b) VR counselor interest, attention, and concern for client needs, and (c) overall satisfaction with services received from VR. As per Figure 4 in Appendix E, a lower level of difficulty in getting to and from VR service provider locations was also related significantly to successful employment outcomes for transitional youth with disabilities.

Findings Related to Research Question 4

What are the relationships between the characteristics of transitional youth, VR services, contextual factors, and employment outcomes for transitional youth?

Research Question 4 was answered through the application of structural equation modeling (SEM). As can be seen in the TWYD model in Figure 1 (found in Appendix A), multiple relationships were hypothesized to exist between the characteristics of transitional youth, VR agency organizational culture and resources, local environmental factors, VR services, and employment outcomes. SEM was used to simultaneously evaluate the relationships between the model constructs and employment outcomes.

The TWYD structural model initially tested did not fit adequately with sample data. Initial model testing results found the χ^2 value of the model to be $\chi^2 = 152.63$, $p < .005$. A non-significant χ^2 value is indicative of a good fitting model (Bollen & Long, 1993; Tabachnik & Fidell, 1996). Thus, the significant χ^2 value suggested the original hypothesized TWYD model did not fit the data.

Various fit indices also are used to assess model fit. Byrne (2001) and Tabachnik and Fidell (1996) recommend that the confirmatory fit index (CFI) be used as the primary

index of choice when evaluating model fit. These authors reported that unlike the normed fit index (NFI), which tends to under-estimate model fit with small sample sizes, the CFI is effective at estimating model fit even in small samples. According to Tabachnik and Fidell (1996), high CFI values (i.e., greater than .90) are indicative of a good fitting model. In this study, a CFI of .83 was found when attempting to fit the hypothesized TWYD model to sample data.

To further assess the fit of the CDTE model, three additional accepted measures of fit: the goodness-of-fit (GFI) index, Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA) were examined. The GFI reflects the proportion of the total variance and covariance accounted for by the model. Similarly, the TLI assesses the proportion of the variance and covariance accounted for by the model, but relative to the null model (i.e., the model proposing no relationship among the variables). The GFI and TLI vary along a 0-to-1 continuum, and values greater than .90 are generally thought to reflect a good fit to the data (Bentler, 1990; Kline, 1998). The RMSEA is the average difference between sample variances and covariances and the estimated population variances and covariances. The RMSEA has a range of 0 to 1 and values less than .05 suggest a close fit (Browne & Cudeck, 1993). Based on the SEM test of the hypothesized TWYD model, fit data results were as follows: GFI = .87, TLI = .85, and RMSEA = .063. Combined, the significant χ^2 and initial CFI, GFI, TLI, and RMSEA findings indicated that re-specification of the TWYD model was necessary.

Byrne (2001) stated that one advantage of using SEM is that specified models can be modified according to theory or fit information provided by statistical output to develop models that better fit the data. Based on initial findings, we undertook

modifications restricted to those that were consistent with VR and transition theory and research and improved the overall fit of the model. Two modifications were made to the original TWYD structural model. First, direct beta paths that were not statistically significant were removed. This consisted of removal of the path from local environmental factors to VR services.

Second, as recommended by Byrne (2001) and Tabachnik and Fidell (1996), Lagrange Multiplier (LM) data were reviewed to identify paths that were not originally specified that may improve overall model fit. The LM test asks: What parameter(s) should be added to the model to improve the fit? Output from LM statistics suggested that model fit would improve if paths from organizational culture and resources to employment outcomes and local environmental factors to employment outcomes were specified in the model. Inclusion of these paths in the model was substantively meaningful and theoretically reasonable. These paths, therefore, were added to the model. All other path coefficients were in the predicted direction and statistically significant, and, thus, no additional modifications were made to the model.

Figure 5 depicts the final model. The re-specified model had a $\chi^2 = 102.88$, $p = .13$, CFI of .94, GFI of .96, TLI of .92, and RMSEA of .046. The decrease in χ^2 and change from a significant to a non-significant χ^2 suggested the re-specified model better fits the data (Byrne, 2001). In addition, the increases in the CFI, GFI, TLI, and RMSEA to acceptable levels all indicated a significant improvement in and adequacy of model fit. Together, the four constructs, characteristics of transitional youth, VR services, organizational culture and resources, and local environmental factors, explained 38% of the variance in employment outcomes.

Finally, only 17 iterations were needed for a convergent solution. Byrne (2001) reported that a small number of iterations (< 20) indicate that in general a specified model is adequate. Overall, the fit information suggested that the re-specified TWYD model was acceptable. All parameter estimates, or path coefficients, in the re-specified model, as predicted, were positive and statistically significant at the $p < .05$ levels. Thus, relying on statistical and theoretical rationales, the final TWYD structural model depicted in Figure 5, as determined through standard post hoc model-fitting procedures, stands as an adequate and reliable representation of the sample data. Detailed data on the final structural *Model of Transition to Work of Youth with Disabilities* is provided in Appendix A.

Findings Related to the Condition of Award

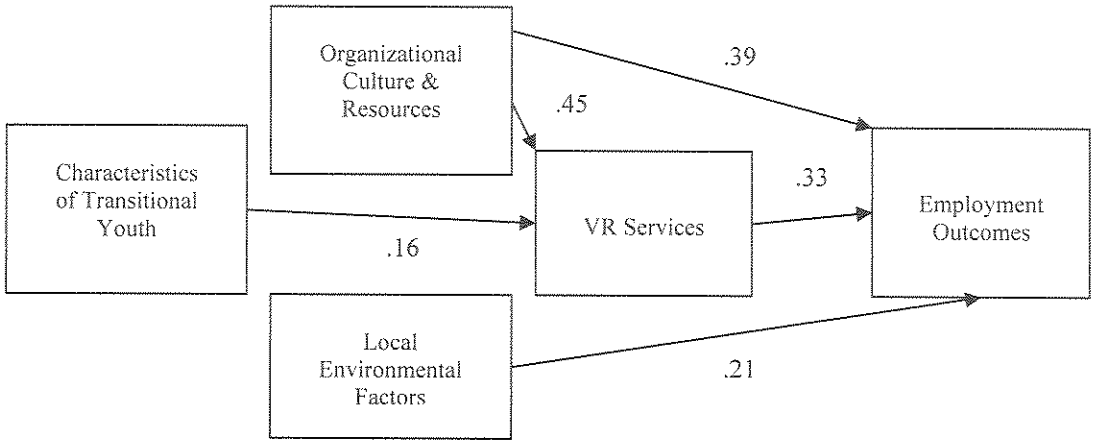
This project award was contingent upon the following condition:

"This study should determine which factors were most predictive of who ends up with VR services and why (e.g., local, environmental, State factors, mandatory order of selection)."

The most logical and effective approach to address the above condition was to use the research methodology and protocols established by previous researchers who have used and analyzed data sets similar to those in the LSVRSP. The RSA-911 data file closely mirrors the LSVRSP database. Therefore, the work of Capella (2002) and Wilson (2000) provided a useful model for addressing the required condition. These researchers have explored RSA-911 data files in an effort to compare various subgroups of the VR population in relation to acceptance rates, receipt of VR services, demographic characteristics such as race and education, and employment outcomes. The above

Figure 5

Final Structural Model of Transition to Work of Youth with Disabilities



$R^2 = .38$
$\chi^2 = 102.88$
$p = .13$
CFI = .94
GFI = .96
TLI = .92
RMSEA = .046
All parameter estimates are significant at the $p < .05$ level.

condition was addressed by performing analyses similar to those conducted by Capella (2002) and Wilson (2000) with a focus on the transition youth with disabilities included in the LSVRSP database. In this manner, appropriate subgroups of this population were selected for comparison.

One primary group identified included 420 individuals whose cases were closed rehabilitated. The second group identified included a total of 365 individuals from the following VR statuses: 178 individuals whose case were closed not rehabilitated after an

Individual Plan for Employment (IPE) was initiated, 125 individuals whose cases were closed not rehabilitated before the IPE was initiated, and 62 individuals whose cases were closed from referral, applicant, or extended evaluation statuses. Thus, to address the condition, the transitional youth sub-sample of 420 individuals who were successfully rehabilitation were compared and contrasted on multiple variables with the transitional youth sub-sample of 365 individuals whose cases were closed not rehabilitated.

The sub-sample of 420 individuals represented those transitional youth with disabilities who were determined eligible for VR services, received VR services, and achieved a successful employment outcome. The sub-sample of 365 individuals represents those transitional youth with disabilities whose cases were closed (a) not rehabilitated after being determined eligible for VR services and receiving VR services (n=178), (b) not rehabilitated after being determined eligible for VR services but prior to the receipt of VR services (n=125), or (c) prior to being determined eligible for VR services (i.e., from referral, applicant, or extended evaluation statuses) (n=62).

Chi-square and independent samples *t*-test analyses were conducted comparing the two groups on the following variables: age at application, gender, race, marital status, education, reading achievement level, arithmetic achievement level, severity of primary disability, disability type, evidence of receipt of financial assistance, receipt of SSDI, receipt of SSI-Disabled, vocational readiness, career-oriented values, psychosocial functioning, community integration, and self-esteem. Combined, these variables provide a comprehensive set of information related to addressing the condition of "which factors are most predictive of who ends up with VR services and why."

The analysis revealed very few differences between the two sub-sample groups. More specifically, there were three variables on which there were statistically significant differences between the two groups. These variables included gender, severity of primary disability, and disability type. There were a significantly higher percentage of males than females whose cases were closed with successful employment outcomes. Further, a significantly higher percentage of the cases of individuals with severe disabilities were closed with successful employment outcomes compared with the cases of individuals with no severe disability or a most severe disability. Finally, regarding primary disability type, there were significantly more individuals with a primary disability of mental retardation whose cases were closed with successful employment outcomes and significantly more individuals with learning disabilities whose cases were closed not rehabilitated after being determined eligible for VR services and receiving VR services. No statistically significant difference existed between any of the other variables used to compare the two sub-sample groups of interest.

Summary of Findings

Purpose of the Study

The purpose of this study was to utilize the LSVRSP database to evaluate the transition to work process and outcomes for youth with disabilities.

Research Questions

The research questions of interest in this study were as follows:

1. What are the relationships among the characteristics of transitional youth, their access to and receipt of VR services, and their employment outcomes?

2. What are the relationships among VR agency organizational culture and resources, VR services, and employment outcomes for transitional youth?
3. What are the relationships among local environmental factors, VR services, and employment outcomes for transitional youth?
4. What are the relationships among the characteristics of transitional youth, VR services, contextual factors, and employment outcomes for transitional youth?

Condition of Award

In addition to the above research questions, this project was contingent upon the following condition: "This study should determine which factors are most predictive of who ends up with VR services and why (e.g., local, environmental, State factors, mandatory order of selection)."

Regarding Research Question 1, results indicated that a specific set of variables related to the characteristics of transitional youth and VR services were predictive of successful employment outcomes for youth with disabilities. The pattern of variables suggests that educational and VR services focused on assisting transitional youth with disabilities with attaining higher levels of reading achievement may facilitate effective VR processes and lead to positive work outcomes for youth. In addition, vocational preparation and career development services that promote vocational readiness and enhanced psychosocial functioning appear to be important factors related to the employment development of youth with disabilities. As such, services such as career counseling and social skill development should be available for youth prior to and during the VR process. Finally, findings related to Research Question 1 also suggest that programmatic efforts by the Social Security Administration, Rehabilitation Services

Administration, and public schools to pursue high levels of educational and work-related goals and skills may enhance employment outcomes among youth with disabilities following the receipt of VR services.

Findings related to Research Question 2 indicated that the employment outcomes of transitional youth with disabilities can be enhanced by higher levels of VR agency organizational culture and organizational effectiveness. This finding suggests that efforts to improve VR system organizational performance may promote the career development of young people with disabilities. To accomplish this task, the Baldrige Quality Criteria provide the basis for organizational self-assessments that: (a) help improve organizational performance practices, capabilities, and results, (b) facilitate communication and sharing of best practices information among organizations of all types, and (c) serve as a working tool for understanding and managing performance and for guiding planning and opportunities for learning (National Institute of Standards and Technology, 2002).

In addition, given that successful employment outcomes were more likely for youth if VR counselor education levels were higher and if VR counselors held national certification as a rehabilitation counselor (CRC), it is important to attend to the qualifications and credentials of VR personnel who provide services to youth with disabilities. These findings provide evidence to support efforts designed to upgrade the knowledge, skills, educational levels, and credentials of VR personnel such as the Comprehensive System of Personnel Development (CSPD). The CSPD is the mandated effort within the state-federal VR system designed to ensure that qualified personnel provide high quality VR services to individuals with disabilities (Armstrong, 2003).

The finding that the presence of the appropriate amount of client choice was also a significant predictor of successful employment outcomes indicates that informed consumer choice is a critical ingredient in the provision of effective VR services to transitional youth with disabilities. This finding provides evidence to support the various VR system informed choice and transition self-determination initiatives that have been developed and implemented during the past decade. Finally, VR service-related variables that can be effectively managed including factors influencing service provision (i.e., major changes in systems processes), amount of VR counselor effort in helping a youth with a disability work toward employment, and length of time needed to determine eligibility for services also were related significantly to successful employment outcomes for youth with disabilities.

Study data related to Research Question 3 indicated that a combination of a specific set of local environmental factors and VR service-related variables increased the likelihood of a successful employment outcome for a transitional youth with a disability who received VR services. Results suggest that factors that may enhance employment outcomes for youth include higher levels of counselor control over case service funds, counselor focus on client needs and employment development, and lower caseload sizes for general caseload counselors. Combined, these counseling-related and case services process variables are factors that can be effectively managed within the VR system and, thus should be closely attended to in relation to the provision of transition-related VR services to youth with disabilities.

The availability of transportation both during the VR process and employment of youth with disabilities also appears to be a necessary ingredient for job success. In

addition, results in this study provide evidence to support continued funding for specific VR-related employment programs such as Projects with Industry, which appear to be a positive factor in promoting successful employment outcomes for youth with disabilities. Projects with Industry programs focus on addressing the needs of employers before, during, and after the VR process such as providing disability-related employer training and education, resources related to the ADA (e.g., job accommodation and accessibility), information related to employer incentives (e.g., tax credits), and ongoing follow-along and follow-up supports after an employer hires an individuals with a disability. Finally, findings of the present study indicate that successful employment outcomes for youth with disabilities were more likely to occur if services were provided in urban settings. This finding suggests that further delineation of those factors that facilitate effective VR processes and outcomes in urban areas and of those factors that may impede vocational success for youth with disabilities in rural areas is needed.

Research Question 4 was answered through the application of SEM using variables measuring characteristics of transitional youth, organizational culture, local environmental factors, and employment outcomes. Findings provided support for a revised version of the TWYD model. Results indicated that when combined, model constructs contribute to positive rehabilitation outcomes of youth with disabilities in unique ways. More specifically, SEM output data illustrated that the characteristics of youth with disabilities have a direct and significant relationship with VR service-related variables, which, in turn, directly influence employment outcomes. This finding, combined with findings related to Research Questions 1 through 3, suggests that a specific pattern of demographic and career development factors related to youth and VR

system processes can be assessed, modified, and enhanced in order to maximize employment outcomes.

Further, while local environmental factors did not have a direct and statistically significant influence on VR services, they did relate significantly to employment outcomes. As such, VR system contextual factors must be considered, evaluated, and adjusted as necessary in order to facilitate positive rehabilitation outcomes for youth with disabilities. Finally, data in this study indicated that VR system organizational culture and effectiveness have direct and significant relationships with both VR service-related variables and employment outcomes. This finding suggests that employment outcomes for youth with disabilities would be enhanced if resources were allocated toward continuing to enhance overall VR agency organizational quality.

Regarding the condition of the award of this project, analyses revealed very few differences between the two sub-sample groups. More specifically, there were three variables on which there were statistically significant differences between the two groups. These variables included gender, severity of primary disability, and disability type. There were a significantly higher percentage of males than females whose cases were closed with successful employment outcomes. Further, a significantly higher percentage of the cases of individuals with severe disabilities were closed with successful employment outcomes compared with the cases of individuals with no severe disability or a most severe disability. Finally, regarding primary disability type, there were significantly more individuals with a primary disability of mental retardation whose cases were closed with successful employment outcomes and significantly more individuals with learning disabilities whose cases were closed not rehabilitated after being

determined eligible for VR services and receiving VR services. No statistically significant difference existed between any of the other variables used to compare the two sub-sample groups of interest.

The analysis and findings related to the condition of the award indicated that much data are missing from the LSVRSP database. The lack of statistically significant differences on variables selected to compare and contrast those youth with disabilities who achieved successful employment outcomes as a result of receiving VR services and those who did not is likely a direct result of missing data. Thus, it is important to emphasize that the analysis and findings related to the research questions of interest in this study and the condition of the award are affected by the nature of the LSVRSP database. A limitation of the LSVRSP database is that much data are missing, particularly when the focus is on a relatively small segment of the database population and/or on a small number of variables. Thus, the lack of statistically significant findings in this project is likely due, in part, to missing data. This situation suggests that researchers and policy-makers should proceed with caution when using the LSVRSP database to evaluate the results of this study and overall VR processes and outcomes. Such precautions would enable reliable and useful longitudinal tracking of the employment outcomes of youth with disabilities who are Social Security beneficiaries.

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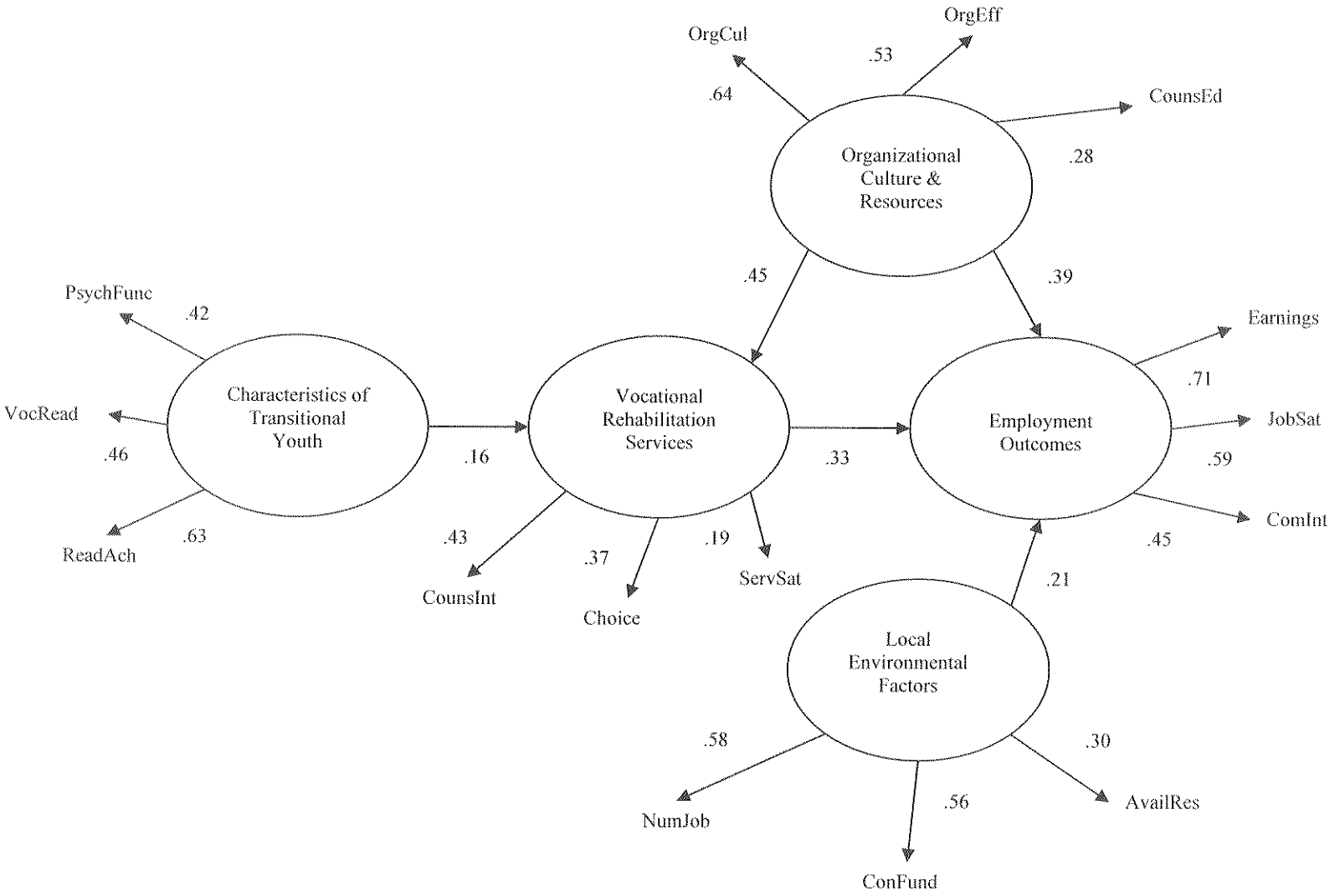
Appendix A

Final Model of Transition to Work of Youth with Disabilities



Model Key

R^2 = .38
CFI = .94
GFI = .96
TLI = .92
RMSEA = .046
All parameter estimates are significant at the p <.05, χ^2 = 102.88.
Note: CFI = Confirmatory Fit Index, GFI - Goodness of Fit Index, TLI - Tucker-Lewis Index, RMSEA = Root Mean Square Error of Approximation.

Construct	*Indicators*
Characteristics of Transitional Youth	PsychFunc - Psychosocial Functioning VocRead - Vocational Readiness ReadAch - Reading Achievement
Vocational Rehabilitation Services	CounsInt - VR counselor interest, attention, and concern for needs Choice - Enough choice in selecting vocational goal ServSat - Overall satisfaction with services received from VR
Organizational Culture & Resources	OrgCul - Organizational Culture OrgEff - Organizational Effectiveness CounsEd - Level of VR Counselor Education
Local Environmental Factors	NumJob - Number of job opportunities in VR office service area ConFund - VR counselor control over case service funds AvailRes - Availability of resources to assist clients in securing employment
Employment Outcomes	Earnings - Earnings at exit from VR services JobSat - Satisfaction with employment ComInt - Community integration