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PREDICTING EMPLOYMENT OUTCOMES AMONG FORMER VOCATIONAL REHABILITATION CONSUMERS WITH VISION IMPAIRMENT FROM CUSTOMER SATISFACTION, ACCEPTANCE OF VISION LOSS, DEGREE OF FUNCTIONAL VISION, PRIMARY SOURCE OF SUPPORT, AND PREVIOUS WORK EXPERIENCE

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ABSTRACT

PREDICTING EMPLOYMENT OUTCOMES AMONG FORMER VOCATIONAL REHABILITATION CONSUMERS WITH VISION IMPAIRMENT FROM CUSTOMER SATISFACTION, ACCEPTANCE OF VISION LOSS, DEGREE OF FUNCTIONAL VISION, PRIMARY SOURCE OF SUPPORT, AND PREVIOUS WORK EXPERIENCE

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The purpose of this study is to examine the ``relationship of customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience to employment outcomes among former Michigan Commission for the Blind (MCB) customers who are visually impaired or blind by applying Livneh's (2001) psychosocial adjustment to chronic illness and disability (CID) model. One-hundred twenty-eight former MCB customers whose cases were closed as either successfully employed or unsuccessfully employed during fiscal years 2003 and 2004 were examined via mail survey. Stepwise logistic regression analysis suggested that individuals who reported a high level of customer satisfaction and who emphasized their own assets and abilities, rather than limitations, were more likely to be employed at the time of their case closure. Further, chi-square analysis indicated that MCB customers who had a previous work experience were more likely to be closed as employed than those who did not have any work experience. However, no statistically significant relationship was found between employment outcomes and the degree of functional vision, suggesting that an individual who has enough vision to read and write printed materials (with or without special aid) was not positively associated with a successful

employment outcome. Similarly, no difference was found between individuals who reported public support (e.g., Social Security Disability Insurance [SSDI], Supplemental Security Income [SSI], or Temporary Assistance to Needy Family [TANF]) as their single largest source of economic support and those who reported personal income (e.g., personal earning or family support) as their single largest source of economic support regarding the employment outcome. Implications for vocational rehabilitation practice as well as suggestions for future rehabilitation research are provided.

To my wife, Jeen-Hoa, and my son, Young-In

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CHAPTER 1

INTRODUCTION

Work is a major life role for many individuals. The ability to build and maintain a career in the competitive labor market and to benefit from work, both personally and economically is a major life goal for many people. Holding a job provides the means to support oneself and family, to engage in a regular, predictable daily routine, and to experience job satisfaction and increased self-esteem. The inclusion of people with disabilities in the world of work is crucial to their social integration and economic independence (Houtenville, 2003). Increased employment allows individuals with disabilities to live independently, enjoy self-determination, make choices, contribute to society, and pursue meaningful careers.

Despite legislation such as the Randolph-Sheppard Act of 1936, many individuals with visual impairments or blindness are unemployed or under-employed. Even with the passage of the Americans with Disabilities Act (ADA) of 1990, which prohibits employment discrimination against individuals with disabilities, individuals with visual impairments continue to be substantially underrepresented in the competitive labor market (Crudden, 1999; Crudden, McBroom, Skinner, & Moore, 1998; Rumrill & Scheff, 1997). National data indicate that the rate of employment among persons who are blind or visually impaired is significantly lower than that of the general population (Leonard, D'Allura, & Horowitz, 1999). For instance, according to National Health Interview Survey--Disability Supplement data (Kirchner, Schmeidler, & Todorov, 1999), only 46% of working-age adults (ages 18-69) with a visual impairment (i.e., difficulty seeing words and letters in ordinary print, even with glasses on) are working. This figure decreases to

32% among individuals who are legally blind (i.e., central visual acuity of 20/200 or less in the better eye with the best possible correction, or a visual field of 20 degrees or less" (Ponchilla & Ponchilla, 1996)). These percentages are significantly lower than the estimated 80% of persons without a disability in this age group who are employed (Kirchner et al., 1999).

Multiple explanations for the high unemployment and underemployment of people who are visually impaired or blind appear in the rehabilitation literature. Some explanations focus on individuals' inadequacies, such as the lack of training, limitations due to visual impairment, deficient marketable skills, and discouragement (Hanye, 1998; Salomone & Paige, 1984). Other explanations highlight societal issues, including labor force trends, architectural barriers, public attitudes, transportation, and discrimination in hiring (Corn, Muscella, Cannon, & Shepler, 1985; Crudden, 1999; Wolffe, Roessler, & Schriner, 1992). Still others emphasize both personal and societal barriers (Crudden et al., 1998; Kirchner, Johnson, & Harkins, 1997; O'Day, 1999). Although these findings contribute to our understanding of the barriers to employment for people with visual impairments or blindness, the research has failed to elucidate specific ways to improve the situation. In addition, studies examining unemployment or underemployment for people with visual impairment or blindness have failed to address the reasons why disability policy such as ADA or Workforce Investment Act (WIA), which intend to promote employment for people with disabilities, have not produced their anticipated outcomes (Crews & Long, 1997).

Considering the importance of employment in the lives of people with disabilities, it is not surprising that the primary purpose of the state-federal vocational rehabilitation

(VR) system is to empower individuals with disabilities to obtain and maintain meaningful employment and economic self-sufficiency (Kosciulek, Vessell, Rosenthal, Accardo, & Merz, 1997). The focus in VR has traditionally been placed on employment in the competitive labor market (Bolton, Bellini, & Brookings, 2000). An underlying assumption in VR is that successful employment will lead to greater personal independence and increased empowerment for people with disabilities (Bolton et al., 2000).

Current legislative priorities impacting VR programs also place increased emphasis on achieving high-quality employment outcomes (Moore, 2001b). Provisions contained in the Employment and Literacy Enhancement Act of 1997 (H.R. 1385) and the Rehabilitation Act Amendments of 1992 and 1998 are evidence of this trend (Moore, 2001b). Indeed, the most fundamental question asked during the past 50 years of rehabilitation research has been, "Which variables influence or predict successful employment outcomes for rehabilitation clients?" The rationale for this line of investigation is that if we understand the determinants of employment outcomes, we can intervene to increase the likelihood of success for VR clients (Bolton et al., 2000). Consequently, research on the prediction of rehabilitation outcomes has been extensive, including examinations of numerous demographic, psychological, social, and service variables for a wide variety of client populations (Bolton et al., 2000; Dunham, Koller, & McIntosh, 1996; Gamble & Moore, 2003; Giesen & Ford, 1986; Kirchner et al., 1999; Moore, 2001b; Wilson, Alston, Harley, & Mitchell, 2002).

Research predicting employment outcomes for people who are blind or visually impaired has focused on educational background (Emener, 1995; Fireison & Moore,

1998), the type and severity of the visual impairment (Crudden & Hanye, 1999; Taheri-Araghi & Hendren, 1994), family support (Moore, 1984), and the type of the agency serving this population (Cavenaugh, Giesen, & Pierce, 2000). Unfortunately, as Crews and Long (1997) and Giesen and Graves (1987) indicated, studies examining the prediction of employment outcomes of VR consumers with visual impairments or blindness are few in number, out of date, and include a rather narrow scope of predictor variables. In addition, much of the existing literature deals with non-vocational adjustment to blindness, restricts itself to a population of blind persons in a specific geographic region, or describes employed blind persons only (Giesen & Graves, 1987). In response to the continuing high unemployment and underemployment of individuals with visual impairments or blindness, it is important to consider a broader, multi-faceted range of factors that influence employment outcomes such as customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience, that will address current public policy, service delivery trends, and psychological adjustment to disability.

Important Areas of Study

Customer satisfaction

The Rehabilitation Act Amendments of 1992 and 1998 increased program evaluation requirements for state rehabilitation agencies (Council of State Administrators of Vocational Rehabilitation [CSAVR], 1998). One area of outcome evaluation that continues to receive significant attention is customer satisfaction. Federal legislation, the emergence of consumer choice approaches, which assumes that individuals with disabilities should have the primary authority to make choices that work best for them,

and the increased demand for the accountability of funding sources, have resulted in a need for VR agencies to demonstrate a high level of customer satisfaction with their services (Koch & Merz, 1995; Kosciulek, 1999, 2003; Richard, 2000). Further, it has been suggested that customer satisfaction is one of the primary variables by which to evaluate the effectiveness of services and document positive rehabilitation outcomes (CSAVR, 1998; Richard, 2000). Thus, consumer satisfaction is a critical variable to evaluate in relation to VR outcomes among individuals with visual impairments.

Acceptance of vision loss

Another important factor to consider when assessing the influences on employment outcomes is acceptance of disability (Groomes & Linkowski, In press). It is widely believed that the degree to which the individual accepts his or her vision loss is a significant factor which must be considered in understanding rehabilitation outcomes among people with visual impairments (Dodds, 1993; Dodds, Bailey, Pearson, & Yates, 1991; Dodds, Flamingan, & NG, 1993; Livneh, 2001; Livneh & Antonak, 1997). Kendall and Buys (1998) argued that psychosocial adjustment issues represent one of the most significant influences on rehabilitation outcomes. Further, in their study to develop a scale of adjustment for people with blindness or visual impairments, Dodds et al. (1991) reported that the acceptance of one's loss of sight plays a crucial role in the psychological adjustment process. These researchers argued that following loss of sight, a period of psychological adjustment is usually necessary in order for individuals to prepare mentally for the tasks ahead. During this period, the acceptance of one's loss of sight is one of the major determinants influencing the adjustment process as well as its outcome (Dodds et al., 1991). In a later study to validate a scale of adjustment for people with blindness or

visual impairment, Dodds et al. (1993) found that a person with a high acceptance of one's vision loss demonstrated (a) low levels of anxiety, (b) an absence of depression, (c) high self-esteem, (d) a high sense of self-efficacy, (e) a high sense of responsibility for recovery, and (f) a positive attitude towards individuals with visual impairment or blindness (Dodds et al., 1993).

Contextual Factors

Literature on rehabilitation outcomes also suggests that contextual factors such as a degree of functional vision, primary source of support, and previous work experience may contribute significantly to employment outcomes among people with visual impairments (Livneh, 2001). Exploring the degree of functional vision will show whether differences in employment outcomes exist between those who have some functional vision and those who do not. Studying the primary source of support will determine whether recipients of public support, specifically social security benefits, have different employment outcomes than customers with visual impairments or blindness who do not receive such support. Some studies examining barriers to employment for people with visual impairments or blindness have speculated that a fear of losing cash or medical benefits is one of main barriers to employment among people with visual impairments or blindness (Houtenville, 2003; O'Day, 1999).

The underlying rationale for evaluating the relationship of previous work experience to employment outcomes is that early exposure to various employment experiences for people allow them to build up a body of internalized knowledge about work (e.g., interpersonal skills, productivity, employer expectations, job rewards, good or bad supervision, and job-specific skills (Hanye, 1998). However, many people with

visual impairments or blindness, especially those with early onset of visual impairment, are not exposed to various work experiences, which later result in difficulty obtaining and maintaining employment (Crudden, 1999; Hanye, 1998).

In summary, it is important to examine the aforementioned five constructs to gain a better understanding of the influences on employment outcomes among people with visual impairments. It is anticipated that the process and results of this study may contribute to the following:

1. The development of a reliable and valid model useful for predicting employment outcomes among people with visual impairments,
2. The expansion of the vision rehabilitation literature related to VR and employment among people with visual impairments and blindness, and
3. The provision of data for guiding intervention programs designed to enhance employment outcomes for individuals with visual impairments or blindness.

Conceptual Framework for the Study

The psychosocial adjustment to chronic illness and disability (CID) model proposed by Livneh (2001) serves as a useful framework for investigating the impact of customer satisfaction, acceptance of vision loss, and contextual factors on VR employment outcomes among people with visual impairments. This model suggests that investigation of the process of adaptation to CID includes three distinct classes of interacting variables: antecedents or triggering events, the process of psychosocial adaptation, and psychosocial outcomes (Livneh, 2001). Antecedents or triggering events of the disabling condition include both explicit and implicit causes and the contextual (i.e., biological, psychosocial, and environmental variables) within which the disability

has occurred (Livneh, 2001). The process constructs of psychosocial adaptation are focused on the interconnectedness of the subjectively experienced reactions to the disability (e.g., those associated with the onset of the trauma, loss, and stress) and a large number of medical, sociodemographic, personality, and environmental variables (Livneh, 2001). Psychosocial outcomes, which may be viewed as separate indicators of quality of life, are commonly classified according to their functional or contextual domains (i.e., intrapersonal, interpersonal, extrapersonal), content areas (i.e., cognitive, affective, or behavioral), and specific sources of outcome measurement (i.e., self, relevant other, or rehabilitation professional) (Livneh, 2001).

Applying this model to the current study, the onset of vision loss is an antecedent event that triggers the process of adaptation to visual impairment or blindness. Livneh's (2001) model indicates that degree of functional vision, primary source of support, and previous work experience are contextual variables that are influenced by a triggering event such as loss of vision. In turn, these factors directly influence psychosocial adjustment process variables of acceptance of vision loss and customer satisfaction. Combined, these sets of contextual and process variables influence the extrapersonal functional domain of psychosocial adaptation. According to Livneh (2001), this domain includes work as a critical aspect of psychosocial outcome. Thus, Livneh's model provides a useful structure for evaluating the relationship of consumer- and VR-process related variables to employment outcomes.

Purpose of the Study

While VR outcomes have been studied extensively, relatively few studies have focused on factors influencing employment outcomes for VR customers with visual

impairments. This study represents a first attempt at establishing a model that is useful for predicting employment outcomes among people with visual impairments or blindness. The purpose of this study is to examine the relationship of customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience to employment outcomes among former VR customers who are visually impaired or blind. This purpose will be addressed by seeking an answer to the research questions below.

Research Questions

1. What is the relationship between customer satisfaction and acceptance of vision loss and employment outcomes among former VR customers with visual impairments or blindness?

2. What is the relationship of degree of functional vision, primary source of support, and previous work experience to employment outcomes among former VR customers with visual impairments or blindness?

The participants in this study include former MCB customers whose cases were closed during fiscal years 2003 and 2004 (October 1, 2002 – September 30, 2004) in one of the two following closure categories: (1) successful employment outcome and (2) unsuccessful employment outcome. Descriptive statistics will be computed on respondent demographic characteristics (e.g., age at closure, gender, race, marital status, and level of education) using variables extracted from the Michigan Commission for the Blind (MCB) 2003 and 2004 RSA-911 database. In order to address the first research question, a stepwise binary logistic regression will be used because it is the data analytic tool of choice when the equation to be estimated has a dichotomous dependent variable

(i.e., successful or unsuccessful employment outcomes). Regarding the second research question, chi-square analyses will be conducted to examine the relationship between employment outcomes and degree of functional vision, primary source of support, and previous work experience.

Definition of Terms

Acceptance of Vision Loss

In this study, acceptance of vision loss is defined as the level or quality of valuing oneself in relation to visual impairment. According to this view, vision loss is perceived as inconvenient and limiting, but people with visual impairments or blindness who accept their vision loss still strive to improve a certain aspect of life. One accepts having a visual impairment when a person enlarges his or her scope of values, subordinates physique, contains disability effects, and transforms comparative values into asset values (Wright, 1983).

Current Work Status

For the purpose of the present study, the current work status is measured by asking whether a participant is currently working. A current job title is asked to participants who reply "yes" to the previous question.

Customer Satisfaction

In this study, customer satisfaction is defined as the level and quality of customer satisfaction with VR services in relation to: (1) customer participation, choice, and involvement in the VR process; (2) relationship with the counselor, timeliness of services, and customer service; (3) satisfaction with services received; and (4) overall satisfaction with the VR process and agency.

Degree of Functional Vision

For the purpose of this study, degree of functional vision is defined as the ability to see enough to write and read printed materials with or without special aids.

Primary Source of Support

For the purpose of this study, primary source of support refers to the individual's largest single source of economic support at the time of application for VR services, even if it accounts for less than one-half of the individual's total support.

Previous work experience

In this study, previous work experience will be measured by whether a person has worked in a competitive employment setting at any time prior to applying for VR services from the Michigan Commission for the Blind.

Successful Employment Outcome (Exited with an Employment Outcome)

As per the Rehabilitation Services Administration (RSA) classification system, successful employment outcome includes homemaker and competitive employment (RSA, 2003). For the purpose of this study, a successful employment outcome refers to competitively employed customers, including those who were closed as competitively employed at least 90 days, as self-employment, or as a business enterprise program (BEP).

*Unsuccessful Employment Outcome (*Exited without an Employment Outcome, after Receiving Services)

According to the RSA, there are 6 unsuccessful closure categories. They include (a) exited as an applicant; (b) exited during or after a trial work experience/extended evaluation; (c) exited without an employment outcome, after receiving services; (d)

exited without an employment outcome, after a signed Individualized Plan for Employment (IPE), but before receiving services; (e) exited from an order of selection waiting list; and (f) exited without an employment outcome, after eligibility, but before an IPE was signed (RSA, 2003). Because the purpose of this study is to examine factors that influence employment outcomes of former VR customers with visual impairments, an unsuccessful employment outcome refers to those who exited MCB without an employment outcome, after receiving services.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter provides a review of the literature addressing the impact of customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience on employment outcomes among former VR clients with visual impairments. The review begins by addressing the literature related to of visual impairment. It includes the terminology and prevalence of visual impairments, an historical overview, and the major VR programs and legislation that have affected vocational services for individuals with visual impairments. Following this section, a review of previous studies regarding rehabilitation outcomes for people with visual impairments is presented.

The major constructs of interest in this study are then presented. First, the concept and mandates related to customer satisfaction with VR services are reviewed. Issues related to measurement of and empirical research pertaining to customer satisfaction is reviewed as well. Acceptance of vision loss is discussed next. This section of the review defines acceptance of vision loss, describes its importance in the psychological adjustment to vision loss, and explores its potential influence on employment outcomes. A review of constructs (degree of functional vision, primary source of support, and previous work experience) then follows. Pertinent empirical research findings that address the importance of these constructs in relation to predicting employment outcomes of people with visual impairments are discussed. Finally, a conceptual framework for this study, adapted from Livneh's (2001) model of psychosocial adaptation to chronic illness and disability, is presented.

Terminology and Prevalence

Terminology

There is no universally agreed upon definition that refers to blindness or people experiencing visual limitations (Dickerson, Smith, & Moore, 1997). For example, the World Health Organization (WHO) defined blindness as corrected visual acuity less than 20/400 in the better eye. According to this definition, an individual cannot count fingers held up by an examiner at a distance of 20 feet or cannot walk around unguided (Dickerson et al., 1997). In the United States, however, the clinically designated term legal blindness is used more frequently to refer to people with visual impairment or blindness. Legal blindness is defined as central visual acuity of 20/200 or less in the better eye with the best possible correction, or a visual field of 20 degrees or less.

Legal blindness is an arbitrarily chosen parameter that does not relate to functional ability in a concrete way. People who fall within the boundaries of legal blindness range in visual ability from having no usable vision or light perception to being able to read newspaper print. Individuals who receive services from state VR agencies generally fall under the large umbrella created by the definition of legal blindness because agencies that provide VR programs for people with visual impairments usually require a client to be legally blind (Ponchilla & Ponchilla, 1996).

It is also important to understand that terms such as blindness, visual impairment, or visual disability are often used interchangeably to refer to the entire population of individuals with visual impairments. For example, the term visual impairment is generally used in the field of blindness to refer to any deviations in vision while visual disability is used to refer to a visual impairment of sufficient magnitude. In addition, as a

result of the confusion over terminology and the recognition of the diversity among people with visual impairments, there is a tendency to define terms more broadly. Rather than using arbitrarily chosen numeric measurements and boundaries, it is more effective to use functional definitions that provide more concrete descriptions of individuals' vision in terms of their actual abilities.

Prevalence

In order to plan service and benefits utilization, estimate funding needs, and provide a context for research and education, it is essential to know how many people with visual impairment there are and how they are distributed within the general population (Kirchner & Schmeidler, 1997; Ponchilla & Ponchilla, 1996). Unfortunately, the literature on the prevalence of visual impairments may be confusing because there is a great deal of variation among reported estimates (Dickerson et al., 1997; Ponchilla & Ponchilla, 1996). This is in part due to differences among the surveys in the assessment of vision (i.e., self-report of vision loss versus loss based on standard visual testing), differences in definitions of blindness and visual impairment, and differences in the age, socioeconomic status, and racial/ethnic mix of the populations studied (National Research Council [NRC], 2002).

While merging and rounding of various estimates from federal surveys of noninstitutional and institutional (i.e., nursing home residents) populations studied in the mid- to late 1990s, the American Foundation for the Blind (AFB) (2004) estimated that 10 million people in the United States are blind or visually impaired. Based on data from the National Health Interview Survey (NHIS) of the National Center for Health Statistics (NCHS) findings, the AFB (2004) further reported that in 1994-95, there were

approximately 1.3 million Americans who reported legal blindness. Of these individuals, 80% (1,040,000) had some useful vision. The other 20% (260,000) had only light perception or less vision and half of these individuals were totally blind (130,000). NHIS data also suggested that a majority of people with visual impairments live in the metropolitan areas. (Schmeidler & Halfmann, 1998). In addition, the rates of blindness and visual impairment, as reported in several studies, suggest that Blacks and Hispanics have more vision loss than whites, and there is a marked increase in visual impairments among elderly people (Kirchner, 1999a; Kirchner & Schmeidler, 1997; NRC, 2002; Orr & Rogers, 2001). As of 1997, there were approximately 5 million people aged 65 and older and 6.5 million aged 55 and older with moderate to severe visual impairments (Schmeidler & Halfmann, 1998).

Finally, Kirchner (1999b) found that the Survey of Income and Program Participation (SIPP) is preferable to the NHIS when using the functional definition of vision. Although both surveys are key sources in estimating the prevalence of people with visual impairments and both surveys have questions about a respondents' ability to see print to indicate a functional limitation in seeing, SIPP's focus is on economic context, covering factors such as employment, earnings, and federal benefits programs. Based on 1994-95 SIPP findings, it is estimated that 8.1 million people have a functional limitation in seeing, including 6.5 million people with non-severe limitations (i.e., difficulty seeing words and letters) and 1.6 million people with severe limitations (i.e., unable to see words and letters) (Kirchner, 1999b).

A Historical Overview of Blindness and Visual Impairment

Early Days

Services to people with visual impairments in the United States have their historical roots in many sources. From the earliest of times (e.g. Greek and Roman era), people who were blind were separated from society. The extreme form of this was exemplified by the common Greek and Roman practice of annihilating blind individuals. It was not until the medieval period, beginning in about the 12th century, that societies began to protect blind people by providing food and shelter. (Koestler, 1976; Ponchilla & Ponchilla, 1996). Unfortunately, care and containment, not education, were the governing motifs regulating the treatment of people with visual impairments (Ponchilla & Ponchilla, 1996; Rubin & Roessler, 2000).

Early attempts at educating children and youth who were blind date back to at least 1784 when Valentin Hauy founded a school and workshop in Paris for individuals who were blind. Although Hauy's goal to provide blind persons with the skills necessary for supporting themselves through training for employment were not successful, his effort was one of the earliest positive attempts at rehabilitating persons with visual impairments (Rubin & Roessler, 2000). The development of Braille in 1826 and the establishment of the New England Asylum for the Blind in 1832 brought extraordinary change in the direction of delivery of services and formed a base for educational and rehabilitative services for people with visual impairments (Moore, Huebner, & Maxson, 1997).

Samuel Howe established the first workshop for people with visual impairments in 1840. Such workshops provided succeeding generations of blind people not only with employment but with the gratification of self-support (Koestler, 1976). For the most part,

the early workshops produced simple, handmade objects that could be manufactured out of easily obtained materials, and could be sold in local markets. Several other schools for the blind duplicated Howe's innovation. The workshops were ultimately separated from the schools and came under the management of voluntary organizations for the adult blind and, later, of state VR agencies (Koestler, 1976).

In 1875, Congress passed a law entitled "An Act to Promote the Education of the Blind," which recognized the need for specialized materials for children who were blind and committed the government to assist in providing such materials (Moore et al., 1997). Further, in 1895, the American Association of Workers for the Blind (AAWB) was formed to contend with vocational training for adults with visual impairments who had attained an education, but for whom there were no vocational opportunities. The AAWB was instrumental in establishing the National Industries for the Blind (NIB) (Koestler, 1976; Moore et al., 1997).

Emergence of Legislation and State-Federal VR Programs

Employment opportunities for most Americans with visual impairments were isolated or nonexistent for most of the 19th century. Employment for people who were blind or visually impaired also remained stagnant for the early years of twentieth century despite the civilian VR program which began with the passage in 1920 of the Smith-Fess Act (P.L. 66-236) (Cavenaugh & Pierce, 1998). A prevailing assumption in the 1920s and the early 1930s was that persons with visual disabilities had little potential for competitive employment; hence, such persons received very little benefit from early legislative developments in rehabilitation. Individuals who were blind were directed

toward stereotyped occupations and were expected to work in either sheltered workshops or home industry settings (Cavenaugh & Pierce, 1998; Rubin & Roessler, 2000).

Landmark legislation during the mid- 1930s provided a foundation for more employment opportunities for people who were blind or visually impaired (Cavenaugh & Pierce, 1998; Koestler, 1976; Moore et al., 1997; Rubin & Roessler, 2000). Major legislation included (1) the Social Security Act (1935), which made the State-Federal VR Program a permanent program; (2) the Randolph-Sheppard Act (1936), which allowed individuals who were blind to operate vending stands in federal buildings, and (3) the Wagner-O'Day Act (1938), which required the federal government to purchase designated products produced by people who were blind and working in rehabilitation workshops (Moore et al., 1997). Despite such disability policies, during the period from 1920 to 1943, state VR programs benefited few individuals with visual impairments because they were regarded as too severely disabled and too difficult to place in jobs.

It was during World War II that employment for people with visual impairments began to notably expand (Johnson, 1998). The deployment of a large number of men into the military, coupled with an increased demand for the manufacture and assembly of products through defense contracts, made it necessary for employers to seek out employees from untapped sources, including people with visual impairments (Johnson, 1998; Rubin & Roessler, 2000). Further, the passage of the Barden-LaFollette Act (PL 78-113) in 1943 made it possible for VR services for people with visual impairments to be administered by state commissions or other agencies serving people who were blind (Cavenaugh & Pierce, 1998; Moore et al., 1997). As a result, state commissions and

other agencies could receive funds from the federal government, and several states established separate state plans to administer VR services to provide services, including employment training and placement, for people who were blind (Moore et al., 1997). The Barden-LaFollette Act is a major piece of legislation for blind rehabilitation services and there is no wonder that this act was referred to as "the Magna Charta of the blind" (Koestler, 1976)." The VR Act Amendments of 1954 further strengthened the ability for designated state units serving people who were blind to receive direct funds (Moore et al., 1997). Similarly, amendments to the VR Act of 1965 for the first time allocated federal funds toward initial construction, remodeling, and renovation of facilities, which resulted in establishing rehabilitation center-based services for customers with visual impairments or blindness (Moore et al., 1997).

The 1992 Amendments (PL 102-569) to the Rehabilitation Act of 1973 (PL 93-112) is another important piece of federal legislation related to persons who are blind or visually impaired. Section 101 (a) (1) (A) of the Rehabilitation Act of 1973, as amended, led to the formation of three different categories of state VR agencies: separate agencies for people who are blind, general agencies, and combined agencies. There are presently 82 state VR agencies in the United States and its territorial possessions (Cavenaugh & Pierce, 1998). These are composed of 25 separate state agencies for people who are blind, and 57 general or combined agencies (Moore et al., 1997). Section 103 (a) of the Rehabilitation Act describes the extensive scope of VR services available to individuals who are blind or visually impaired to prepare for and engage in gainful employment. VR services provided under the Rehabilitation Act of 1973, as amended, include such services as (1) assessment, (2) counseling, (3) physical and mental restoration, including

eyeglasses and visual services as prescribed by an ophthalmologist or an optometrist, (4) reader services for those individuals determined to be blind, (5) vocational training and tools, (6) rehabilitation teaching services and orientation and mobility services for blind individuals, (7) sensory devices and other technological devices, and (8) rehabilitation technology services (Moore et al., 1997).

Outcome Research Related to the Employment of People with Visual Impairments

Numerous studies have been conducted to understand factors that predict employment outcomes of people with disabilities. The rationale for this line of investigation is that if we understand the determinants of successful outcomes, we can intervene to increase the likelihood of predicting the success of VR clients (Bolton et al., 2000). Further, research on outcome prediction can (1) identify persons who would be unlikely to have successful outcomes in order to provide extra attention and help that might ensure successful placement; (2) demonstrate difficulty of cases to justify budget requests; and (3) measure counselor performance (Capella, 2001).

Despite its importance, the field of vision rehabilitation has little history or tradition in measuring employment outcomes (Crews & Long, 1997). That is, studies examining the prediction of successful or unsuccessful employment outcomes with people with visual impairments are few in number, dated, and included a rather limited pool of predictor variables (Vander Kolk, 1989). Much of the existing literature deals with nonvocational adjustment to blindness, restricts itself to a population of blind persons in a specific geographic region, or describes employed blind persons (Giesen & Graves, 1987). In addition, there is limited research on individuals with visual

impairments who have participated in the state VR program (Crews & Long, 1997; Giesen & Graves, 1987).

Agency types

When trying to understand employment outcomes, several researchers have investigated whether separate state agencies are more effective in providing specialized VR services to customers with visual impairments than general VR agencies (Cavenaugh, 1999; Cavenaugh et al., 2000; Cavenaugh & Pierce, 1998). Proponents for separate service delivery agencies argue that dissolution of separate agencies will result in a loss of specialized services (e.g., rehabilitation teaching, orientation and mobility, low vision services) that are critical to successful rehabilitation outcomes for people with visual impairments. On the contrary, opponents contend that separate service delivery systems are duplicative and possibly inequitable for persons with disabilities other than visual impairment or blindness.

Due to the potential threat of elimination of the separate state VR agency for the blind, studies have been conducted to investigate the customer characteristics, services, and outcomes of customers with visual impairments served in separate and general agencies (Cavenaugh, 1999; Cavenaugh, Giesen, & Pierce, 2000; Cavenaugh & Pierce, 1998; National Accreditation Council for Agencies Serving the Blind and Visually Handicapped [NAC], 1997). Findings from these studies are mixed. For example, findings by Cavenaugh and Pierce (2000) suggested that separate agencies reported higher competitive employment closures and lower rates of homemaker closures than general agencies. Similarly, NAC's (1997) report on employment outcomes also found that the specialized agencies placed a higher percentage of persons into competitive work

settings, had a lower rate closed as homemakers, had higher percentage of personal income as their primary source of support, and had closures with higher average weekly earnings. Conversely, in a study to determine what variables account for differences in earnings of clients with visual impairments served by state-federal VR agencies, Capella (2001) did not find significant differences in earnings between the groups of clients served by separate versus combined agencies.

Sociodemographic and personal characteristics

Most of the research investigating factors that predict employment outcomes among individuals with visual impairments has long focused on identified sociodemographic and personal characteristics. An example of this type of research is the work of Vander Kolk (1989). Analyzing 140 cases of persons who were blind and visually-impaired and who were closed as either successfully employed or not successfully employed after receiving services, this researcher found that vision was less related to success while education, age, and work experience were positively associated with competitive employment. It was also found that amount of vision, such as totally blind versus partially sighted, did not play a role in client employment outcomes (Vander Kolk, 1989). Similarly, marital status, type of school, gender, and onset of vision loss were not related to employment outcomes.

Findings by Leonard et al. (1999) also supported that higher educational levels, attending an integrated school setting, computer and typing skills, greater overall satisfaction with social contact, and a greater motivation to work were positively associated with successful employment outcome. Similar to Vander Kolk (1989), self-reported visual acuity was not related to employment outcome. Hill's (1989) study to

examine the client and VR program characteristics that explain the work status for people with visual impairments revealed similar trends. This research found that clients with higher level of education were more likely to work in the competitive labor market or be self-employed. Unlike other studies, it was found that clients with less severe visual impairment were more likely to be placed in competitive employment (Hill, 1989). In an in-depth analysis of NHIS data on the employment of people who are legally blind or have other significant visual impairments, Kirchner et al. (1999) reported similar findings. These researchers found that gender, ethnicity/race, and level of education contributed to higher employment rates among people who were blind or had significant visual impairment. More specifically, it was determined that male, White, and individuals with higher levels of completed education were more likely to be employed in the competitive work world (Kirchner et al., 1999).

Some studies have sought to predict employment outcomes by using a specific sociodemographic or personal characteristic, such as educational attainment or educational setting. For example, Fireison and Moore (1998) investigated the relationship between employment outcomes and the educational backgrounds of legally blind adults employed in sheltered industrial settings. They found that employees who attended public schools had higher salaries than employees who attended residential schools or employees who went to both types of schools. In his study that investigated former clients who received post-secondary educational services and were closed as successfully employed, Emener (1995) reported that clients who received a college education demonstrated a much higher employment rate. Roy, Dimigen, and Taylor (1998) examined the relationship between the social networks of fifty one-college

graduates who were visually impaired and their employment. The results of their research suggested that respondents who were employed had more friends, were more actively engaged in social activity, and had wider networks of helpers for job seeking.

While education, gender, and social networks have been recognized as major determinants that contribute to successful employment outcome for individuals with visual impairments, some researchers have tried to identify whether family support and onset of vision loss play a positive role in employment outcomes. Moore (1984) examined cases that were closed as either successfully employed or not employed following receipt of services in fiscal year 1982 by Mississippi Vocational Rehabilitation for the Blind to assess the impact of family attitudes toward blindness on the rehabilitation process. This researcher found that clients who have families that exhibit a broad spectrum of positive attitudes during the rehabilitation process have a greater probability of a successful closure culminating in competitive employment.

VR services

Literature that directly supports whether VR services contribute to positive employment outcomes for clients with visual impairments is rare. This is somewhat surprising since the most frequently used argument to advocate for separate VR agencies for people with visual impairments is that they provide specialized services (e.g., personal adjustment training [PAT], orientation and mobility [O&M], assistive technology training), which are critical to successful rehabilitation outcomes for this population.

Herndon (1995) classified 971 clients with visual impairments into three groups (i.e., competitive, perfect retention, noncompetitive) to identify determinants in

employment outcomes of individuals with visual impairments served by state VR agencies. This researcher found that clients in the competitive or perfect retention group were more likely to receive restoration services (i.e., prosthetic eyes or eye surgery) and use optical aids, implying that they are likely to have less severe vision impairments. Conversely, clients in the noncompetitive group were more likely to receive PAT or O&M services (Herndon, 1995). Similar results were reported by Leonard et al. (1999), who concluded that receiving technology training and receiving fewer hours of rehabilitation teaching emerged as significant predictors of employment in higher level positions.

The research on the impact of reading media (i.e., Braille versus print) on employment outcomes is mixed. For example, Ryles (1996) compared a number of outcomes for congenitally legally blind adults who learned to read Braille or print as their original reading medium. It was found that those who learned to read using Braille had higher employment rates and educational levels, were more financially self-sufficient, and spent more time reading than did those who learned to read using print. In comparison, Leonard et al. (1999) concluded that reading primarily printed material was one of the predictors of successful employment outcome. Variables such as total amount of case service money spent and the number of changes in career objectives in the Individualized Plan for Employment (IPE) were reported to be associated with employment outcomes. That is, clients who were most likely to have a successful employment outcome had fewer changes in career objectives, worked prior to applying for VR services, and $3,000 to $4,000 were spent on their cases (Taheri-Araghi & Hendren, 1994).

In summary, sociodemographic or personal characteristics (e.g., level of education, age, social network, family attitudes) have been consistently identified as factors that influence employment outcomes of individuals with visual impairments, while research examining the impact of agency type (i.e., separate versus combined) has been found to be inconclusive in relation to employment outcome. Services (e.g., restoration and assistive technology training) have been found to influence employment outcomes of this population. It is less clear how variables such as reading media, PAT, and O&M training contribute to employment outcomes, although these can be considered essential components in the rehabilitation process of people with visual impairments or blindness.

Constructs of Focus

Customer Satisfaction

A growing emphasis on customer involvement and the increased demand for accountability by funding sources has resulted in a need for VR programs to demonstrate high levels of customer satisfaction with services (Koch & Merz, 1995; Kosciulek, 2003). Effective customer satisfaction assessment practices have become necessary in order to meet legislative initiatives, growing empowerment among customer groups who demand informed choice, and changes in current service intervention strategies (Richard, 2000). Kosciulek (1999) supported this trend suggesting that increased control and choice in disability policy formulation and rehabilitation service delivery by individuals with disabilities would have a positive effect on community integration, empowerment, and quality of life, which in turn would result in a higher level of satisfaction. Similarly, Schwab and Fenoglio (1992) and Schwab, DiNitto, Simmons, and Smith (1996) stated

that a high level of customer satisfaction was one of the key features of a high quality rehabilitation system. A thorough program evaluation should include not only quantitative measures such as the rate of successful closure but also client feedback and opinions about the services to gain accurate understanding of performance of VR programs. The Committee on Client Services Customer Satisfaction Report, CSAVR (1998) concluded that customer satisfaction data can be critical to improve services for customers, plan programs, evaluate counselors and provide feedback, evaluate program performance, and identify staff training needs.

Customer satisfaction began to receive attention in the field of VR with the passage of the Rehabilitation Act of 1973 that mandated program evaluation for state-VR agencies (Capella & Turner, 2004; Patterson & Leach, 1987). Standard Nine, one of nine original Federal Program Evaluation Standards, focused on client satisfaction with the rehabilitation counselor and with the services rendered (Patterson & Leach, 1987). Subsequent amendments to the Rehabilitation Act of 1973 have mandated additional annual reviews and periodic monitoring of state programs by the regional Rehabilitation Service Administration (RSA) offices in several specific areas, including customer satisfaction (Section 107 of Rehabilitation Act Amendment of 1992) (Capella & Turner, 2004). Further, Section 100 of the Rehabilitation Act Amendment of 1992 mandated that the State Rehabilitation Council be involved in the review and analysis of customer satisfaction data as described in section 105(c)(4) (Kosciulek, 2003). Section 105(c)(4) mandated the State Rehabilitation Council to conduct a review and analysis of the effectiveness of, and customer satisfaction with (a) the functions performed by the designated State agency; (b) VR services provided by State agencies and other public and

private entities responsible for providing VR services; and (c) employment outcomes achieved by eligible individuals receiving services under this title (Kosciulek, 2003). Finally, Section 136 of the Workforce Investment Act of 1998 requires states to develop a system to account for a customer satisfaction performance indicator, which must consist of measuring customer satisfaction through surveys of employers and participants who have received services from workforce investment activities (Kosciulek, 2003).

A significant increase in research has taken place due in part to the growing recognition for the importance of customer satisfaction. However, a caution must be taken since findings of many studies have only provided limited applicability because of an absence of the instrument with widely recognized psychometric properties that can measure multi-facets of this construct. As a result, different VR agencies are using different self-developed instruments.

In their study to investigate the satisfaction of Texas Rehabilitation Commission (TRC) customers, Schwab, Smith, and DiNitto (1993) reported that customers of TRC expressed a high degree of satisfaction with service delivery (i.e., clients' involvement in decisions, clients' needs listened to, appointments scheduled promptly, clients treated with courtesy and respect, and phone calls returned). Further, successfully rehabilitated clients (i.e., those who were employed after their case closure) were found to be more satisfied than those who were not successfully rehabilitated (Schwab et al., 1993). Similar results were reported by Kosciulek et al. (1997), who analyzed the Missouri Division of Vocational Rehabilitation (MDVR) consumer satisfaction survey. According to their findings, MDVR customers felt they (a) received services in a timely manner, (b) their counselors helped them understand their disability and how it might affect their

future work, (c) they were involved in making choices about their goals and services, and (d) VR services have helped or will be helpful to get a job (Kosciulek et al., 1997).

In their analysis of the TRC customer satisfaction survey to identify predictors of customer satisfaction, Schwab, DiNitto, Aureala, Simmons, & Smith (1999) reported that satisfaction with length of time it took to provide services, level of responsiveness to the client, closure status, and level of understanding of what services were available were the most significant factors in predicting customer satisfaction. In contrast with the findings of most customer satisfaction research, including a similar study by Schwab et al, (1993), they reported that clients who were not employed at closure were almost as satisfied as clients who were employed at that time. This may be due in part to the fact that clients seem to make a distinction between satisfaction with employment and satisfaction with services (Schwab et al., 1999).

Applying the concept of internal marketing, which refers to that fact that organizations who serve their employees well positively affect their external customers, Capella and Andrew (2004) investigated whether the relationship exists between VR counselors' job satisfaction and their customer satisfaction. They found that counselors' job satisfaction (e.g., opportunities for promotion, pay, and co-workers) was significantly related to consumer satisfaction with services they received and with their counselors. Similar results were reported by Tucker, Abrams, Chennault, Stanger, and Herman (1997), who examined the relationship between VR counselor success and customer satisfaction ratings. Two hundred and fifty-three successfully closed clients who participated in the study expressed high satisfaction with the VR services they received and with the counselors who provided these services (Tucker et al., 1997). Further,

satisfaction rating among customers who received services from successful counselors was much higher. They also found no significant differences in clients' satisfaction ratings due to client demographic variables (e.g., race, gender, age, and education level) (Tucker et al., 1997).

Other research has focused on methodological issues in measuring satisfaction with rehabilitation services (Capella & Turner, 2004; Koch & Merz, 1995; Kosciulek, 2003; Patterson & Leach, 1987; Schwab et al., 1999). After reviewing four instruments measuring customer satisfaction, Koch & Merz (1995) concluded that there is no clear theoretical framework among existing instruments to define customer satisfaction, and maintained that a multidimensional approach is necessary in measuring customer satisfaction. Echoing this belief, Capella & Turner (2004) argued that most consumer satisfaction instruments use global measures that treat consumer satisfaction uni-dimensionally despite the fact that it is a multidimensional construct. They also indicated that the majority of results from consumer satisfaction studies indicate high satisfaction and a lack in variability because they utilize items that tend to lead respondents to socially desirable responses. Similarly, Richard (2000) criticized VR researchers and program evaluation specialists who too often have restricted themselves to using single global measures of consumer satisfaction. Further, most instruments fail to provide reliability and validity information which makes the results lack a sophisticated and holistic measurement of the construct of consumer satisfaction (Capella & Turner, 2004; Kosciulek, 2003). Furthermore, each state uses its own instrument to measure customer satisfaction which not only makes comparisons across states impossible, but also means

that the quality of these instruments vary widely from state to state (Capella & Turner, 2004).

Acceptance of Vision Loss

Many theorists examining the acceptance of vision loss (Carroll, 1961; Cholden, 1958; Tuttle, 1984) assert that the loss of sight is a serious blow to self-esteem and that the newly visually impaired person travels a sequential set of phases during the adjustment process. They argue that a person should not enter rehabilitation until he or she reaches the acceptance stage. Tuttle (1984), for instance, illustrated seven phases of adjusting to vision loss that an individual goes through. They include (a) trauma, (b) shock and denial, (c) mourning and withdrawal, (d) succumbing and depression, (e) reassessment and reaffirmation, (f) coping and mobilization, and (g) self-acceptance/self-esteem (Tuttle, 1984). The trauma phase is the actual loss itself. The shock and denial phase is characterized by mobilization of psychological defense mechanisms that protect the ego during periods in which unacceptable realities prevail. The mourning and withdrawal phase follow as individuals become aware of the reality of the loss. As individuals become acutely aware of the limitations, they succumb to the loss, and depression follows. During the reassessment and reaffirmation phase, the individual may decide which of the limitations accompanying the impairment can be overcome. Coping and mobilization behaviors then begin to appear as the individual actually begins to overcome limitations to change his or her attitude that the disability is devaluating. Finally, the self-acceptance/self-esteem phase occurs in which the individual accepts the blindness or visual impairment as one of his or her personal characteristics along with all the others (Tuttle, 1984).

Along with the stage models, the acceptance of loss model developed by Dembo, Leviton, and Wright (1956) has been widely used when examining the concept of acceptance of disability (Linkowski, 1971). This model defines acceptance of disability as a person's intolerance of resignation and self-devaluation and places its emphasis on the subjective meaning of the disability to the impaired individual and the associated emotions and values (Dembo, Leviton, Wright, & Cavenaugh, 1956; Wright, 1983). In this view, vision loss may be seen as inconvenient and limiting, but people with visual impairments or blindness who accept their vision loss still strive to improve a certain aspect of life. Attainment of such acceptance can be achieved when an individual successfully goes through a series of value changes (Wright, 1983). Namely, people with visual impairments who are perceived as having high levels of acceptance of vision loss (a) demonstrate a satisfaction with remaining values and reckoning with what has been lost (enlarging the scope of values); (b) are able to believe that physical appearance matters less than personality and doing one's best (subordination of physique); (c) do not spread vision loss beyond their actual impairment to other aspects of their life (containment of Disability Effects); and (d) do not compare themselves to others in terms of the areas of limitations and liabilities, but emphasize their own assets and abilities (transformation from comparative values to asset values) (Wright, 1983).

Based on the acceptance of loss theory (Dembo et al., 1956; Wright, 1983), Linkowski (1971) developed an instrument to measure levels of acceptance of disability. The Acceptance of Disability (AD) scale is prominent in many rehabilitation studies (Dodds et al., 1991; Dodds et al., 1993; Groomes & Leahy, 2002; Heinemann & Shontz, 1982; Li & Moore, 1998; Linkowski & Dunn, 1974) and it has been a widely accepted

measure of adjustment to disability (Groomes & Linkowski, In press). The original AD scale is a 50-item self-report questionnaire and uses a 6-point Likert scale. Scores sum into a total score that indicates one's level of acceptance of disability; higher scores reflect greater levels of acceptance (Groomes & Leahy, 2002). The original AD scale was later revised by Groomes and Linkowski (In press). The revised AD scale has 32 items and uses a 4-point Likert scale. Both the original and revised versions maintain moderat to relatively high internal consistency (Groomes & Linkowski, In press).

Many studies have been conducted to examine the relationship between various characteristics and the acceptance of disability. In their study investigating the acceptance of disability in relation to self-esteem, sex-role attributes, and reading ability in a group of deaf adolescents, Heinemann and Shontz (1982) found that disability acceptance was positively associated with self-esteem. Similar findings were reported by Linkowski and Dunn (1974) whose research on 55 college students with physical disabilities yielded significant positive correlations among acceptance of disability and two aspects of self-concept (i.e., self-esteem and satisfaction with social relationships). Dodds et al. (1991) also found a positive relationship of high level of acceptance of vision loss with low levels of anxiety, an absence of depression, high self-esteem, a high sense of self-efficacy, and a positive attitude towards visually impaired people.

Li and Moore (1998) conveniently sampled 1, 266 adults, who utilized state VR services, to examine relationships between acceptance of disability and various characteristics, including demographic variables, disability conditions, and psychosocial factors. They found that younger, married, and higher income people demonstrated more favorable acceptance of disability (Li & Moore, 1998). Furthermore, perceived social

discrimination against people with disabilities was found to have a significant impact on acceptance of disability. Finally people with a single disability or with congenital disabilities demonstrated higher level of acceptance (Li & Moore, 1998). Hampton and Crystal (1999) studied 57 VR consumers to find out whether gender differences exist in acceptance of disability. They noted that female participants appeared to have a lower level of acceptance than males (Hampton & Crystal, 1999). Their finding contradicted Joiner, Lovett, and Goodwin (1989), who reported no difference in the acceptance of disability on the basis of gender. Finally, in their study examining the relationships among the stress appraisal process, coping disposition, and level of acceptance of disability, Groomes and Leahy (2002) found that there was a significant relationship between acceptance of disability and coping disposition. A significant relationship was also found between a level of disability acceptance and two aspects of the stress appraisal process (i.e., challenge/gain from the situation and past experience with the situation) (Groomes & Leahy, 2002).

Degree of Functional Vision

Research findings examining the relationship between functional vision and employment outcomes of people with visual impairments are inconsistent. For example, Houtenville (2001) found that those with severe visual impairments (i.e., blindness in both eyes) have significantly lower employment rates and a higher prevalence of SSDI (Social Security Disability Insurance) and SSI (Supplemental Security Income) receipt than those with less severe impairments (i.e., those who are able to read and write print). Similarly, in their study to examine factors associated with employment among people with visual impairments, Leonard et al. (1999) found that the ability to use the printed

material as a primary reading medium was positively associated with being employed. Conversely, Vander Kolk (1989) and Ryles (1996) noted that the degree of vision was not related to employment outcomes; totally blind versus partially sighted did not seem to play a role in clients' employment outcomes. Further research is warranted to identify whether the degree of functional vision contributes to a successful employment outcome among VR customers who are blind or visually impaired. With an appropriate operational definition that measures the functional vision contributing to achievement and retention of an employment, an investigation of the degree of functional vision will show whether differences in employment outcomes exist between those who have some functional vision and those who do not.

Primary Source of Support

It has been widely presumed that recipients of public support, specifically those who receive social security benefits, show lower employment rates than customers with visual impairments or blindness who do not receive such support. Research findings have supported this notion suggesting that a fear of losing cash or medical benefits is one of the main barriers to employment among people with visual impairments or blindness (Houtenville, 2003; O'Day, 1999; Wilson et al., 2002). Houtenville (2003) compared the economic status of those who reported being blind in both eyes (i.e., blind, no vision, or cannot see) to the economic status of those who reported other visual impairments. He found that those who reported being blind in both eyes were less likely to be employed and more likely to receive social security benefits than those who reported other visual impairments (Houtenville, 2003). O'Day (1999) carefully recruited 20 unemployed adults who were legally blind to examine perceived employment barriers. She found that

those who actively pursued employment were less likely to apply for social security benefits than those who were not actively pursuing work or those who had actively pursued employment in the past but were beginning to lose hope (O'Day, 1999). Findings by Wilson et al. (2002), who examined 599,444 VR customers whose cases were closed during the fiscal year 1997, indicated that people who received SSDI were more likely to get accepted for VR services. Findings by Cavenaugh et al. (2000) further suggested that customer self-support at application, in contrast with various types of public support, is an important predictor of competitive employment outcome. Thus, the primary source of support will be studied to determine whether recipients of public support, specifically social security benefits, have different employment outcomes than customers with visual impairments or blindness who do not receive such support.

Previous Work Experience

The underlying rationale for evaluating the relationship of previous work experience to employment outcomes is that early exposure to various employment experiences for people allow them to build up a body of internalized knowledge about work (e.g., interpersonal skills, productivity, employer expectations, job rewards, good or bad supervision, and job-specific skills (Hanye, 1998)). However, many people with visual impairments or blindness, especially those with early onset of visual impairment, are not exposed to work experiences, which later result in difficulty obtaining and maintaining employment (Crudden et al., 1998; Hanye, 1998). Therefore, it is critical to explore the relationship between previous work experience and employment outcomes for people with visual impairments.

Conceptual Framework for the Study

The psychosocial adjustment to chronic illness and disability (CID) model proposed by Livneh (2001) serves as a useful framework for investigating the impact of customer satisfaction, acceptance of vision loss, and contextual factors on VR employment outcomes among people with visual impairments. This model suggests that investigation of the process of adaptation to CID includes three distinct classes of interacting variables: antecedents or triggering events, the process of psychosocial adaptation, and psychosocial outcomes (Livneh, 2001). Antecedents or triggering events of the disabling condition include both explicit and implicit causes and the contextual (i.e., biological, psychosocial, and environmental variables) within which the disability has occurred (Livneh, 2001). The process constructs of psychosocial adaptation are focused on the interconnectedness of the subjectively experienced reactions to the disability (e.g., those associated with the onset of the trauma, loss, and stress) and a large number of medical, sociodemographic, personality, and environmental variables (Livneh, 2001). Psychosocial outcomes, which may be viewed as separate indicators of quality of life, are commonly classified according to their functional or contextual domains (i.e., intrapersonal, interpersonal, extrapersonal), content areas (i.e., cognitive, affective, or behavioral), and specific sources of outcome measurement (i.e., self, relevant other, or rehabilitation professional) (Livneh, 2001).

Applying this model to the current study, the onset of vision loss is an antecedent event that triggers the adaptation process to visual impairment. Livneh's (2001) model indicates that degree of functional vision, primary source of support, and previous work experience are contextual variables that are influenced by a triggering event such as loss

of vision. In turn, these factors directly influence psychosocial adjustment process variables of acceptance of vision loss and customer satisfaction. Combined, these sets of contextual and process variables influence the extrapersonal functional domain of psychosocial adaptation. According to Livneh (2001), this domain includes work as a critical aspect of psychosocial outcome. Thus, Livneh's model provides a useful structure for evaluating the relationship of consumer- and VR-process related variables to employment outcomes.

Antecedents or triggering events, the first component of the model, include both explicit and implicit causes linked to the onset of the disabling condition (e.g., genetic or hereditary dispositions, birth traumas and other conditions present at birth, accidents and injuries) and the context within which the disability has occurred (i.e., biological, psychosocial, and environmental variables that provide the background to better understanding the impact of the disability on present and future psychosocial adaptation) (Livneh, 2001).

According to this view, the onset of vision loss can be viewed as an antecedent that triggers the adaptation process to visual impairment. Similarly, the degree of functional vision, primary source of support, and previous work experience, which can be directly influenced by the onset of vision loss, are viewed as contextual variables and are presumed to contribute to present and future psychosocial adaptation process as well.

The process of psychosocial adaptation, the second component of the model, includes two distinct, interconnected features. First, subjectively experienced psychosocial reactions to the disability can be classified into (a) short-term reactions (e.g., shock, anxiety, and denial); (b) intermediate reactions (e.g., grief, depression,

aggressiveness, and anger); and (c) long-term reactions (e.g., acceptance of disability, environmental mastery, behavioral adaptation, and affective equilibrium) (Livneh, 2001; Parker, Schaller, & Hansmann, 2003). Although these reactions primarily have internal origin, environmental influence can mediate them. Second, contextual variables (i.e., disability itself, sociodemographic characteristics, personality or psychological attributes, and external environment characteristics), which are often regarded as moderating, mediating, or interacting variables, exert a more sustained influence on the evolving process of adaptation to the disability.

Acceptance of vision loss, one of the key elements of subjectively experienced psychosocial reactions to vision loss, emerges as an indicator of long-term adaptation to visual impairment, which in turn influences psychosocial adjustment outcomes, including employment. It is widely believed that the degree to which the individual accepts his or her vision loss is a significant factor affecting rehabilitation outcomes. For example, Dodds et al. (1993) indicated that, following loss of sight, individuals go through a period of psychological adjustment to prepare mentally for the tasks ahead. During this period, the acceptance of one's loss of sight is a major determinant influencing the adjustment process as well as its outcome (Dodds et al., 1991; Dodds et al., 1993).

As shown in Figure 1, in the process components of the model, customer satisfaction is an external environment characteristic of contextual influence. It refers to a level of satisfaction with VR services and VR counselors. It can be presumed that if a consumer is satisfied with services as they go through the VR process, a more positive employment outcome is likely to occur. Kosciulek (2003, 1999) suggested that more precise consumer feedback regarding satisfaction with the counselor's role as a case

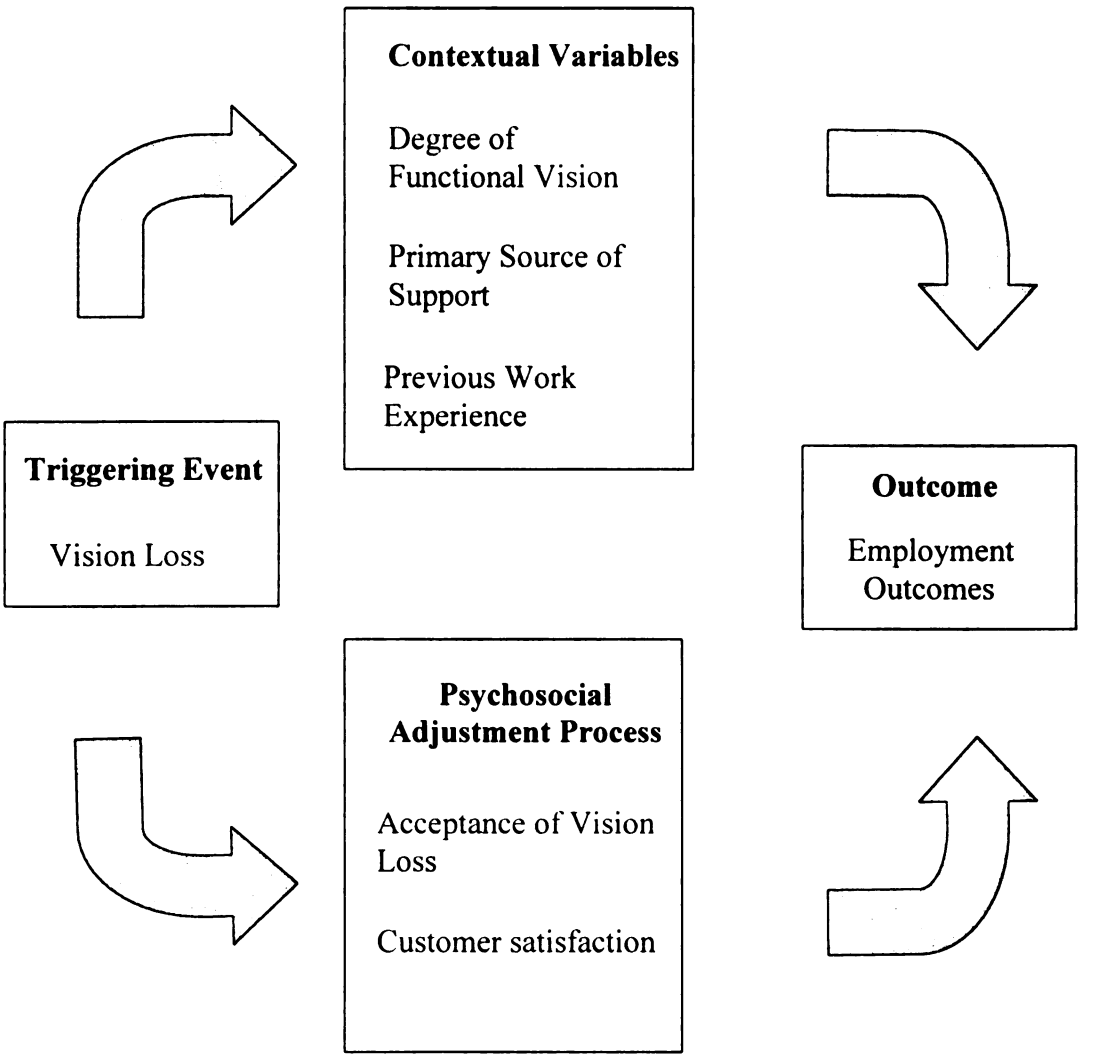
manager, informed choice opportunities, and the quality of employment outcomes would yield specific data useful for improving VR services.

The final component of the model, the anticipated outcome, is viewed as separate indicators of quality of life (QOL) since it is often regarded as the ultimate rehabilitation goal for people with disabilities (Livneh, 2001). In this model, outcomes are measured by focusing on its three functional domains: the intrapersonal domain (e.g., health, psychological or subjective well-being, life satisfaction, self-concept or self-esteem), the interpersonal domain (e.g., family life, marriage, friendships and peer relations, social activities), and the extrapersonal domain (e.g., work activities, recreational pursuits, learning, schooling, housing, finances) (Livneh, 2001).

As one of indicators measuring the extrapersonal domain of the psychosocial outcome component, employment is evaluated in relation to the contextual variables of the antecedent component (i.e., degree of functional vision, primary source of support, and previous work experience) and variables of the process aspect of adaptation (i.e., acceptance of vision loss and customer satisfaction).

Figure 1

Conceptual Framework of the Study



Summary

It is evident that unemployment and underemployment problem still remains one of the most compelling challenges for people with visual impairments as well as rehabilitation professionals. It was found that previous research examining employment outcomes for individuals who are visually impaired or blind that have participated in the state VR programs focuses on a rather narrow scope of demographic variables. This chapter discussed the constructs of the study and illustrated how Livneh's psychosocial adjustment to chronic illness and disability model can be applied to the current study. This literature review concludes that there is a need to examine whether broader, multidimensional constructs (customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience) contribute to differences in employment outcome for former VR customers with visual impairments.

CHAPTER 3

METHODOLOGY

The purpose of this study was to examine the relationship of customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience to employment outcomes among former VR customers with visual impairments or blindness. The research questions in this study were as follows:

1. What is the relationship between customer satisfaction and acceptance of vision loss to employment outcomes for former VR customers with visual impairments or blindness?

2. What is the relationship between degree of functional vision, primary source of support, and previous work experience to employment outcomes for former VR customers with visual impairments or blindness?

This chapter describes the participants, variables and measures, procedures, and statistical analyses employed in this study.

Participants

The population of interest in this study was individuals with visual impairments or blindness who received VR services through the Michigan Commission for the Blind (MCB). More specifically, the participants in this study included MCB customers whose cases were closed during fiscal years 2003 and 2004 (October 1, 2002 – September 30, 2004) in one of the two following closure categories: (1) successful employment outcome and (2) unsuccessful employment outcome.

Successful employment outcome (exited VR program with an employment outcome) refers to customers whose cases were closed after the individual achieved an employment outcome. As per RSA's classification system (RSA, 2003), there are two subgroups in this category. These include homemaker and competitive employment. For the purpose of this study, a successful employment outcome was restricted to competitively employed customers whose cases were closed as competitively employed at least 90 days, as self-employment, or as a business enterprise program (BEP).

As per the RSA's classification system, there are six unsuccessful rehabilitation outcome categories. These include (a) exited as an applicant; (b) exited during or after a trial work experience/extended evaluation; (c) exited without an employment outcome, after receiving services; (d) exited without an employment outcome, after a signed Individualized Plan for Employment (IPE), but before receiving services; (e) exited from an order of selection waiting list; and (f) exited without an employment outcome, after eligibility, but before an IPE was signed (RSA, 2003). Because the purpose of this study was to examine differences in employment outcomes of former VR customers with visual impairments or blindness, an unsuccessful employment outcome referred to those individuals who exited MCB without an employment outcome, after receiving services.

Across the two fiscal years, there were 952 MCB cases that were closed in one of the two closure statuses. Of these, 604 cases were closed as a successful employment outcome and 348 cases were closed as an unsuccessful employment outcome. Since the purpose of this study was to compare the relationship between a specific set of variables and two categories of employment outcomes, it was necessary to eliminate some cases in each of the two closure categories. Among customers with successful employment

outcomes, homemakers (N=284) were not included. Of the 348 customers who were closed as unsuccessful employment outcome, those who were deceased (N=24) and those whose cases were transferred to other agencies (N=16) were eliminated. Further, those individuals who were 64 years of age or older at the time when their cases were closed (N=68) were eliminated because this study followed a convention, which defines working age from 18 to 64 years old (AFB, 2004; Houtenville, 2003). Following the elimination of cases, a total of 560 individuals met the study inclusion criteria. Of these individuals, 303 (54.1%) were in the successful employment outcome category and 257 (45.9%) were in the unsuccessful employment outcome category. Of the 560 study packets sent, 149 customers completed and returned the surveys. The 149 completed surveys yielded 128 useable surveys.

Participant Demographic Characteristics

The following demographic variables were examined: gender, age, race/ethnicity, level of educational attainment, closure status, and type of employment at the time of their case closure. Table 1 provides an illustration of demographic characteristics of the participants in this study. The participants in this study consisted of 60 males (46.9%) and 68 females (53.1%). In comparison, there were more male customers (n = 296) than female customers (n = 264) in the population. The racial/ethnic composition of the participants was 97 Caucasian (75.8%) and 31 Black/African American (24.2%). No individuals of Hispanics, Asian/Pacific Islander, Native American, or Mixed Race background were part of the study sample. Overall, the racial/ethnic composition of the study sample was very similar to that of the population.

Participant ages ranged from 18 – 63 years of age, with a mean age of 41 years. Of the individuals who participated in this study, 42 (32.8%) were between 30 and 39 years of age, and 39 (24.2%) were between 40 and 49 years of age. Regarding the two closure statuses examined, 69.5% (n = 89) of 128 participants were from the successful employment outcome category and 30.5% (n = 39) were from the unsuccessful employment outcome category. Per the population, 303 (54.1%) individuals were in the successful employment outcome category and 257 (45.9%) were in the unsuccessful employment outcome category. In terms of employment status, 75 (84.2%) of 89 individuals in the successful employment outcome category were competitively employed at least 90 days and 11 (12.4%) were self-employed at the time when their cases were closed. As per the population, 256 (84.5%) of 303 individuals who were successfully closed were competitively employed at least 90 days whereas 32 (10.6%) were self-employed. Regarding the level of educational attainment, 42.2% (n = 54) of the participants earned a high school diploma or equivalent, while 22 (17.2%) reported involvement in post-secondary education (no degree), and 18.7% (n = 24) earned an associate degree or higher. As per the education attainment of the population, 40.4% (n = 226) earned a high school diploma or equivalent while 31% (n = 174) reported involvement in post-secondary education.

As illustrated in Table 2, a higher proportion of female participants were closed with a successful employment outcome than their male counterparts. Of the 68 females who participated in this study, 75% (n = 51) were employed while 63.3% (n = 38) of the 60 male participants were employed at the time of their case closure. In terms of

race/ethnicity, 72 (74.2%) of 97 Caucasian respondents fell into the successful employment outcome category as compared to 17 (54.8%) of 31 African-Americans.

Table 1

Participant Demographic Characteristics

Variable	N	Percent
Gender		
Male	60	46.9
Female	68	53.1
Race/Ethnicity		
Caucasian	97	75.8
African-American	31	24.2
Age Classification		
18 – 29	26	20.3
30 – 39	31	24.2
40 – 49	42	32.8
50 – 59	22	17.2
60 or older	7	5.5
Level of Education		
No High School Diploma	23	18
Special Education	5	3.9
High School Diploma or Equivalency	54	42.2
Post-secondary, No Degree	22	17.2
Post-secondary, Degree	24	18.7
Employment Outcomes		
Employed	89	69.5
Not Employed	39	30.5
Type of Employment		
Competitive Employment	75	84.2
Self-Employment	11	12.4
BEP	3	3.4

Table 2

Demographic Characteristics in Relation to Employment Outcomes

Variable	Employed		Not Employed	
	N	Percent	N	Percent
Gender				
Male	38	63.3	22	36.7
Female	51	75	17	25
Race/Ethnicity				
Caucasian	72	74.2	25	25.8
African-American	17	54.8	14	45.2
Age Classification				
18 – 29	18	69.2	8	30.8
30 – 39	22	71	9	29
40 – 49	31	73.8	11	26.2
50 – 59	14	63.6	8	36.4
60 or Older	4	57.1	3	42.9
Level of Education				
No High School Diploma	15	65.2	8	34.8
Special Education	5	80	1	20
High School Graduate or Equivalency	32	59.3	22	40.7
Post-secondary, No Degree	18	81.8	4	18.2
Post-secondary, Degree	20	83.3	4	16

In general, customers with higher levels of education at application were more likely to be closed successfully than those with less education. For example, 20 (83.3%) of 24 participants who had associate or higher degrees were in the successful employment outcome category.

Finally, when asked if they were currently working, 73 (57%) out of 128 participants responded that they were currently employed. Among the 89 participants who were employed at the time when their cases were closed, 68 (76.4%) indicated that they were currently working. It is interesting to note that 5 (12.8%) of 39 individuals who were not employed at the time when their cases were closed reported that they currently have a job.

Table 3 provides a summary of occupations of the 73 participants who were working at the time of the study. Examples of occupations that participants identified include sales (n = 9), factory/production work (n = 8), food-related services (n = 8), self-employment (n = 6), and vending machine (BEP) operator (n = 6). In addition, 9 individuals were classified under the miscellaneous category (e.g., dark room attendant, assistant at the funeral service, auto detailer) and 3 were identified as massage therapists. Seven individuals were classified into the social service category (e.g., social worker, rehabilitation specialist, daycare worker).

Table 3

Participant Occupational Classification

Occupational Classification	N	Percent
Miscellaneous	9	12.3
Sales	9	12.3
Food Services	8	11
Production/Factory Worker	8	11
Social Services	7	9.6
BEP Operator	6	8.2
Self-Employed	6	8.2
Education-Related	5	6.8
Technical	5	6.8
Counselor/Psychologist	4	5.5
Clerical	3	4.1
Massage Therapist	3	4.1

Variables and Measures

Customer satisfaction

Despite federal legislation and the emergence of consumer choice approaches in VR, which have resulted in increased attention to customer satisfaction (Koch & Merz, 1995; Kosciulek, 1999, 2003; Richard, 2000), instruments measuring customer satisfaction have been criticized because they fail to address it as a multidimensional

construct. In addition, most instruments lack accompanying psychometric data regarding reliability and validity (Capella & Turner, 2004; Kosciulek, 2003). A well-designed study should attempt to measure customer satisfaction in a way that accounts for all the major aspects of the VR service delivery process, including interface with the VR system, the specific services received, service providers, consumer choice, and rehabilitation outcomes (CSAVR, 1998). In addition, more precise consumer feedback regarding satisfaction with the counselor's role as a case manager, informed choice opportunities, and the quality of employment outcomes would yield data useful for improving VR services (Kosciulek, 2003).

In this study, customer satisfaction was operationally defined by the Customer Satisfaction Survey (CSS), an instrument originally developed by the Missouri Rehabilitation Services for the Blind. The CSS focuses specifically on former VR customers with visual impairments and it reflects the multi-dimensionality of the customer satisfaction construct. The CSS is comprised of 14 items measuring four components related to customer satisfaction. The first component of the CSS measures customer participation, choice, and involvement in the VR process (e.g., "I had the final say in the selection of service providers"). The second component addresses the relationship with the counselor and the timeliness of the services (e.g., "I received services from the MCB without excessive waiting"). The last two components of the CSS focus on customer satisfaction regarding the employment-related services received (e.g., "The services the MCB provided were adequate to help me secure employment") and the overall agency and VR process (e.g., I am pleased with the overall outcomes of my experience in the VR program provided by the MCB).

The CSS, which can be found in Appendix B, uses a four-point Likert scale (1 = strongly disagree to 4 = strongly agree). The total score of the 14 items is used to measure the level of customer satisfaction (range = 14 to 56). Higher scores on the CSS indicate a greater level of customer satisfaction. Kosciulek (2003),who evaluated the level of customer satisfaction with VR services using the CSS, reported an internal consistency reliability (Cronbach's alpha) of 0.94.

Acceptance of vision loss

It is widely hypothesized that the degree to which an individual accepts his or her vision loss is a significant factor in understanding rehabilitation outcomes among VR customers with visual impairments or blindness (Dodds et al., 1991; Dodds et al., 1993). Since its creation in 1969, the Acceptance of Disability (AD) scale has been a widely recognized measure of adjustment to disability, including for people with visual impairments (Bolton, 1994; Dodds et al., 1991; Dodds et al., 1993; Groomes & Leahy, 2002; Heinemann & Shontz, 1982; Li & Moore, 1998; Linkowski & Dunn, 1974). For example, in their study to validate a scale of adjustment for people with blindness or visual impairment, Dodds et al. (1993) found that a person with a high acceptance of vision loss demonstrated (a) low levels of anxiety, (b) an absence of depression, (c) high self-esteem, (d) a high sense of self-efficacy, (e) a high sense of responsibility for recovery, and (f) a positive attitude towards individuals with visual impairment or blindness. Li and Moore (1998) sampled 1,266 adults who utilized state VR services to examine relationships between acceptance of disability and various characteristics, including demographic variables, disability conditions, and psychosocial factors. These researchers found that younger, married, and higher income people demonstrated more

favorable acceptance of disability (Li & Moore, 1998). Furthermore, perceived social discrimination against people with disabilities was found to have a significant impact on acceptance of disability (Li & Moore, 1998). Finally, in their study examining the relationships among the stress appraisal process, coping disposition, and level of acceptance of disability, Groomes and Leahy (2002) found that there was a significant relationship between acceptance of disability and coping disposition. A significant relationship also was found between level of disability acceptance and two aspects of the stress appraisal process (i.e., challenge/gain from the situation and past experience with the situation) (Groomes & Leahy, 2002).

The original AD scale is a 50-item self-report questionnaire derived from the theory of acceptance of loss (Dembo et al., 1956) which emphasizes the meanings, values, and emotions that people with disability associate with having a disability (Bolton, 1994; Linkowski, 1971). The AD scale items are based on a 6-point Likert-type scale. The total score indicates one's level of acceptance of disability with higher scores reflective of greater levels of acceptance (Groomes & Leahy, 2002). The AD scale has acceptable levels of reliability and evidence of validity. For example, Linkowski (1971) reported an internal consistency coefficient of .93 based on data from a sample of 46 clients with physical disabilities who were in the vocational evaluation and planning phase of rehabilitation.

Acceptance of vision loss was operationally defined in this study by the Revised Acceptance of Disability scale (AD-R; Groomes & Linkowski, in press). AD-R has an administration time of approximately 20 minutes, can be used with adult populations who

read at a fourth grade or higher reading level, and has well-established psychometric properties (Groomes & Linkowski, in press).

The AD-R scale is a 32-item self-report questionnaire derived from Wright's (1983) theory of value change, and can be found in Appendix B. According to this theory, people with visual impairments or blindness who accept their vision loss will still strive to improve their lives after they have progressed through a series of value changes. The four subscales of AD-R measure these value changes to examine whether an individual has achieved a level of acceptance of their vision loss. The first subscale, Enlarging the Scope of Values (e), examines an individual's degree of a satisfaction with remaining values and his/her reckoning with what has been lost (e.g., "My vision impairment will not prevent me from making good in life"). The second subscale, Subordination of Physique (s), examines the extent to which an individual stresses physical ability and appearance in accordance with their vision loss (e.g., "Good physical appearance and physical ability are the most important things in life"). The third subscale, Containment of Disability Effects (c) examines whether an individual spreads vision loss beyond his/her actual impairment to other aspects of life (e.g., "It makes me feel very bad to see all the things that people with vision impairment can do that I cannot). The final subscale, Transformation from Comparative Values to Asset Values (t) examines whether or not an individual emphasizes his/her own assets and abilities, rather than limitations (e.g., "Because of vision loss, I have little to offer other people").

The AD-R uses a 4-point Likert scale (1 = strongly disagree to 4 = strongly agree). The total score of each subscale indicates one's level of acceptance of disability on that respective subscale. In determining high, medium, and low levels of acceptance,

each subscale was broken down into equal parts (Groomes & Linkowski, in Press). That is, a score ranging from 27 to 36 indicates high levels of acceptance In subscales with 9 items (i.e., transformation from comparative values to asset values, containment of disability effects, and enlarging the scope of values). It is important to note that 22 items on the AD-R scale (i.e., 1, 2, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15, 17, 19, 20, 22, 23, 24, 26, 27, 30, and 31) are reversed scored and responses to these 22 items were coded using reverse score on the Likert scale. That is, for each of these 22 items, a score of "1" becomes a "4", a score of "2" becomes a "3", a score of "3" becomes a "2" and a score of "4" becomes a "1". Groomes and Linkowski (In press) conducted a reliability scale analysis of the AD-R scale which indicated a high total reliability score of .93 (Cronbach's alpha). These researchers further reported that the revised instrument maintains relatively high to moderate internal consistency among the four components ranging from .71 for the Subordination subscale to .82 for the Enlargement subscale to .88 for the Transformation and Containment subscales (Groomes & Linkowski, In press).

Degree of functional vision

While VR agencies that provide services to people with visual impairments usually require a customer to be legally blind, legal blindness is an arbitrarily chosen parameter that does not necessarily address how well the individual uses his or her remaining vision in everyday life activities such as work (Dickerson et al., 1997; Kirchner, 1999b; Ponchilla & Ponchilla, 1996). Using functional definitions that provide concrete descriptions of an individual's vision in terms of his/her actual abilities better addresses the effect of reduced visual acuity on the functions and activities in a person's daily life (Ponchilla & Ponchilla, 1996).

In the present study, degree of functional vision was operationally defined by asking whether an individual is able to see enough to read and write printed materials with or without special aids since both the the Survey of Income and Program Participation (SIPP) of the Census Bureau and the National Health Interview Survey (NHIS) of the National Center for Health Statistics (NCHS) has used a question about the respondents' ability to read and write print to indicate a functional limitation in seeing (Kirchner, 1999b). SIPP, which emphasizes economic context covering factors such as employment, earnings, and federal benefits programs, asks whether respondents have a limited ability to see print in order to examine the limitation in seeing (Kirchner, 1999b). Similarly, the HIS asks whether an individual is able to see well enough with glasses to read ordinary print (Kirchner, 1999b). While the current definition may not fully capture various aspects of functional vision, research suggests that it is a reasonable indicator to use when examining employment outcomes. For example, Houtenville (2001) found that individuals with severe visual impairments (i.e., blindness in both eyes) demonstrated significantly lower employment rates than those with less severe impairments (i.e., those who are able to read and write printed materials). Similarly, in their study examining factors associated with employment among people with visual impairments, Leonard et al. (1999) found that the ability to use printed material as a primary reading medium was positively associated with being employed. Conversely, Vander Kolk (1989) and Ryles (1996) noted that the degree of vision was not related to employment outcomes. In these studies being totally blind versus partially sighted did not appear to play a role in contributing to VR client employment outcomes.

Primary source of support

In this study, primary source of support was measured by using the MCB 2003-04 RSA-911 data file. The RSA-911 data file includes the variable "Primary Source of Support at Application for VR Services," which is defined as an individual's largest single source of economic support at application (RSA, 2003). There are four categories within this variable: (1) personal income (earnings, interest, dividends, rent); (2) family and friends; (3) public support (SSI [Supplemental Security Income], SSDI [Social Security Disability Insurance], TANF [Temporary Assistance to Needy Family,]; and (4) all other sources (e.g., private disability insurance and private charities) (RSA, 2003). In this study, these four categories were collapsed into two categories: public support (category 3) and personal sources (categories 1, 2, and 4). This decision was justified by empirical findings showing that recipients of public support, specifically those who receive social security benefits, report lower employment rates than customers with visual impairments or blindness who do not receive such support (Houtenville, 2003; O'Day, 1999; Wilson et al., 2002).

Previous work experience

Previous work experience was measured by asking whether an individual has had a work experience at any time prior to applying for MCB services. Research findings suggest that early exposure to various employment experiences enable one to build up a body of internalized knowledge about work (Crudden et al., 1998; Hanye, 1998). Therefore, examining previous work experience in relation to the employment outcomes is relevant because many people with visual impairment or blindness are not exposed to a

variety of work experiences, a situation which later may contribute to difficulty obtaining and maintaining employment.

Procedure

Research design

A correlational research design was employed in this investigation because the primary intent of this study was to examine relationships between a set of predictor variables and employment outcomes. A correlational study examines the extent to which differences in one characteristic or variable are related to differences in one or more *other* characteristics or variables (Leedy & Ormrod, 2001). The magnitude of the relationship, which is expressed as a correlation coefficient, provides the researcher with insights regarding the theory-based, hypothetical association of the variables of interest.

Data collection

Following the elimination of cases as described in the Participant section, the total population surveyed in this study was 560. A total of three mailing attempts were made to all 560 potential participants over a period of thirteen weeks in an effort to ensure an adequate response rate (Dillman, 2000). First, study packets were mailed from the MCB central office to the addresses of all former MCB customers who met the criteria of the current study. The study packets included (a) consent form/cover letter signed by both the MCB Director and the researcher, (b) a copy of the questionnaire, and (c) a self-addressed return envelope. Second, a reminder postcard was sent to all participants two weeks after the initial survey. As a final attempt, a study packet was sent to participants whose response was not returned to the researcher two weeks after the reminder post card

was mailed. In the third mailing, valid respondents or surveys returned due to incorrect mailing addresses were not included in this round.

To provide a comprehensive means of communication and in order to meet various accessibility needs of potential respondents, the questionnaire was provided in all possible alternative formats except e-mail (i.e., print using Arial 14, Braille, and computer disk). Participants were, in turn, allowed to use their preferred method of communication to complete the questionnaire. In addition, the researcher's phone number was provided in the consent form/cover letter for participants who were not able to complete the survey with any of the alternative formats. The standard procedures used in the mail survey were applied to protect participants' confidentiality and anonymity (Dillman, 2000). The researcher read the consent form/cover letter, identified whether the participant agreed to participate in the study, read the questionnaire, and recorded responses accordingly.

Of the 560 who met the criteria of the present study, surveys sent to 70 returned due to an incorrect mailing address. Of the remaining 490 individuals, 149 customers completed and returned a survey while 341 customers did not. The 149 completed surveys yielded 128 useable surveys. Using Cohen (1988), power analysis yielded a required sample size of 150 with level of significance at $\alpha = .05$, medium effect size of $f^2 = .10$, and power at .80. While the current study did not meet the sample size of 150 required by the power analysis, the sample size of 128 and the overall response rate of 30.4% are adequate considering the size of the target population. In fact, the 30.4% response rate was remarkable compared to state VR agency customer satisfaction response rates, which generally fall into the 5-7% range (CSAVR, 1998). In addition, the

response rate in this survey exceeded general mail survey response rates that are typically 10-15% (Dillman, 2000).

It should be noted that several measures were taken in order to protect participants' confidentiality. A numeric code was assigned to each individual who met the study's eligibility criteria. Final data was stored at a secure location, and no personally identifying information (e.g., name or social security number) was included in the final database. In addition, the participants were informed that any information they disclosed would remain confidential and not be shared with their MCB counselor or anyone else at the MCB. They were further informed that all analyses were conducted with grouped data and all reports addressed only group experiences and outcomes.

Data Analysis

Research Question 1

In order to address the first research question, stepwise binary logistic regression was conducted. Logistic regression analysis has been acknowledged as the data analytic tool of choice when the equation to be estimated has a dichotomous dependent variable (i.e., successful versus unsuccessful employment outcome) (Pample, 1999; Tabachnick & Fidell, 2001). Although logistic regression is related to, and answers the research questions in a similar fashion as discriminant function analysis, logistic regression is more flexible as it has no assumptions about the distributions of the predictor variables. That is, in logistic regression, the predictors do not have to be normally distributed, linearly related, or of equal variance within each group (Tabachnick & Fidell, 2001).

In interpreting results, binary logistic regression models the probability of a particular outcome for each case conditional on one or more independent variables.

Thus, in this study, logistic regression was used to predict the probability that a VR customer with a visual impairment or blindness was closed with a particular employment outcome status given that person's pattern of responses to questions about customer satisfaction and acceptance of vision loss (Hosmer & Lemeshow, 2000; Tabachnick & Fidell, 2001).

Research Question 2

A series of chi-square analyses were conducted in order to examine whether relationships exist between employment outcomes and degree of functional vision, primary source of support, and previous work experience. Chi-square analysis is a non-parametric test of statistical significance for examining relationships between two variables that are categorical (Berman, 2002). Any appropriately performed chi-square test of statistical significance provides the degree of confidence in accepting or rejecting a hypothesis (Berman, 2002).

Finally, given the exploratory nature of this study, a level of significance of $\alpha = .05$ was used as the minimum rejection level for all statistical analyses. The Statistical Package for the Social Sciences (SPSS) software version 12.0 was employed in all of the data analyses in this study (SPSS, 2004).

CHAPTER 4

RESULTS

The purpose of this study was to examine the relationship of customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience to employment outcomes among former Michigan Commission for the Blind (MCB) customers who are visually impaired or blind. This chapter first describes the results of a binary logistic regression analysis that examined the relationship of customer satisfaction and acceptance of vision loss to employment outcomes. Next, results of chi-square analyses that examined the relationship of degree of functional vision, primary source of support, and previous work experience to employment outcomes of former MCB customers with visual impairments or blindness are described. This chapter then provides results that examined the relationship of customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience to current work status of former MCB customers who are visually impaired or blind.

Research Question 1: Relationship between Customer Satisfaction and Acceptance of Vision Loss and Employment Outcomes

Descriptive Statistics

Before addressing the first research question, descriptive statistics (i.e., mean, standard deviation, range, and Cronbach's alpha) for all variables used in the logistic regression analysis are presented (see Table 4). As illustrated in Table 4, the mean score for customer satisfaction (40.88) indicated that levels of satisfaction among participants in this study were high in all areas of the Customer Satisfaction Survey (CSS), including

level of involvement in the VR process, relationship with counselors, and services received. Similarly, examination of mean scores from the Revised Acceptance of Disability Scale (AD-R) revealed that participants demonstrated high levels of vision loss acceptance on all subscales except for the subordination of physique scale. Participants' mean scores on the enlarging the scope of values, containment of disability effects, and transformation from comparative values to asset values scales exceeded 26. According to Groomes and Linkowski (In press), an individual is perceived as having high levels of accepting his/her disability if the sum of item scores in each of these three subscales exceeds 26. Further, an individual is perceived as having medium levels of acceptance of disability when the sum of item scores on the subordination of the physique subscale is less than 16 (Groomes & Linkowski, in press). Thus, the mean score of 15 for the subordination of the physique subscale indicated that participants in this study had a medium level of vision loss acceptance in this area.

Table 4

Descriptive Statistics for Variables Used in the Logistic Regression Analysis

Variable	Mean	Std. Deviation	Range	Cronbach's Alpha
Customer Satisfaction	40.88	8.62	14-56	.94
Containment of Disability Effects	26.65	5.39	9-35	.89
Enlarging Scope of Values	28.78	4.59	17-36	.84
Transformation from Comparative Values to Asset Values	28.56	5.14	12-36	.85
Subordination of Physique	15	2.96	5-20	.72

Table 4 also provides results of the internal consistency (Cronbach's alpha) analysis of the CSS and four subscales of the AD-R. A significantly high internal

consistency reliability was found for the CSS (Cronbach's alpha = .94). It was also found that the AD-R maintained moderate to relatively high internal consistency among the four components, ranging from .89 for the containment of disability effects subscale to .72 for the subordination of physique subscale. These findings were consistent with previous research (Groomes & Linkowski, In press; Kosciulek, 2003). Finally, correlations among all variables used in the logistic regression analysis were calculated. As per Table 5, results indicate low to moderate correlations among all the variables.

Table 5

Correlation Matrix among Variables in Logistic Regression Analysis

	Constant	Customer Satisfaction	Containment of Disability Effects	Enlarging the Scope of Values	Transformation from Comparative Values to Asset Values	Subordination of Physique
Constant						
Customer Satisfaction	-.534					
Containment of Disability Effects	-.064	.197				
Enlarging the Scope of Values	-.272	-.289	-.229			
Transforma-tion from Comparative Values to Asset Values	-.071	-.120	-.597	-.156		
Subordination of Physique	-.212	.157	-.082	-.115	-.454	

Results of Logistic Regression Analysis

In order to examine whether customer satisfaction and acceptance of vision loss contributed to the difference in employment outcomes among former MCB customers with visual impairments or blindness, binary logistic regression analysis was employed. Binary logistic regression analysis has been acknowledged as the data analytic tool of

choice when the equation to be estimated has a dichotomous dependent variable (Pample, 1999; Tabachnick & Fidell, 2001). In interpreting results, binary logistic regression emphasizes the probability of a particular outcome for each case by one or more independent variables. Thus, in this study, logistic regression was used to predict the probability that a MCB customer with a visual impairment or blindness was closed with a particular employment outcome status given that person's pattern of responses to questions about customer satisfaction and acceptance of vision loss (Hosmer & Lemeshow, 2000; Tabachnick & Fidell, 2001).

Table 6

Model Summary of Binary Logistic Regression Using all 5 Predictor Variables

Variable	Unstandardized (B)	S.E.	Wald	df	Sig.	Odds Ratio
Constant	-5.18	1.662	9.708	1	.002	.006
Customer Satisfaction	.059	.027	4.85	1	.028	1.061
Transformation to Asset Values	.16	.083	3.696	1	.055	1.173
Containment of Disability Effects	-.037	.069	.286	1	.593	.964
Enlarging the Scope of Values	-.017	.061	.077	1	.782	.983
Subordination of Physique	.041	.108	.147	1	.701	1.042

In order to yield statistically significant predictor variables, which in turn generate the most accurate model, the following steps were taken. First, the total scores of customer satisfaction and the four subscales of the AD-R were included in the model, using the "enter" method of the binary logistic regression analysis. The analysis yielded two statistically significant predictor variables (i.e., customer satisfaction and

transformation from comparative values to asset values). As illustrated in Table 6, three subscales (i.e., containment of disability effects, subordination of the physique, and enlarging the scope of values) of the AD-R were eliminated from the final model because results of the Wald test indicated that these variables were not statistically significant.

Next, two statistically significant predictor variables (i.e., customer satisfaction and transformation from comparative values to asset values) were analyzed to predict employment outcome via forward stepwise logistic regression analysis. The rationale for using forward stepwise logistic regression analysis was that it enables outcome predictions of dichotomous variables for individual cases using the most parsimonious model (Menard, 2002; Pample, 1999).

As illustrated in Table 7, results of the binary logistic regression analysis suggested that the model fie the data ($\chi^2 = 20.02$, $p = .000$), indicating that these two predictors, as a set, reliably distinguished between customers who were employed and those who were not employed at the time when their cases were closed. The Hosmer and Lemeshow statistic, which evaluates the model's goodness-of-fit, further confirmed that the model fit the data well. The Hosmer and Lemeshow test provides a measure of overall model fit by comparing the observed and predicted values (Hosmer & Lemeshow, 2000). According to Hosmer and Lemeshow (2000), a good model fit has close correspondence between observed and predicted values and, hence, has an insignificant chi-square value. In this study, the result of Hosmer and Lemeshow test was not statistically significant ($\chi^2 = 9.87$, $p = .247$), which indicates the frequency predicted by the model did not significantly differ from the observed frequency. Further, a correlation between the two

predictor variables used in the model was low (r = -.001), which indicates that there is no multicollinearity problem among the variables.

Table 7

Relationship of Customer Satisfaction and Transformation from Comparative Values to Asset Values to Employment Outcomes

Variable	Unstandardized (B)	S.E.	Wald	df	Sig.	Odds Ratio
Constant	-5.336	1.52	12.319	1	.000***	.005
Customer Satisfaction	.059	.025	5.403	1	.02**	1.06
Transformation to Asset Values	.136	.041	10.933	1	.001**	1.15
-2 Log likelihood	137.365(b)					
Cox & Snell R^2	.145					
Nagelkerke R^2	.205					
Chi-square (Hosmer and Lemeshow test)	9.871	.274				
Classification	Percent					
Successful Employment Outcome Category	92.1					
Unsuccessful Employment Outcome Category	33.3					
Overall Probability	74.2					

Note: *$p < .10$, ** $p < .0.5$

Results of the Wald test also revealed that customer satisfaction (Z = 5.40, p = .02) and transformation from comparative values to asset values (Z = 10.93, p = .001) reliably predicted employment outcomes among former MCB customers with visual impairments or blindness (See Table 7). The Cox & Snell (.145) and Nagelkerke (.205) adjustment data indicate that approximately 15% to 20% of the variance in employment outcomes can be explained by customer satisfaction and transformation from comparative values to asset values.

As per the classification data, the overall model using customer satisfaction and transformation from comparative values to asset values correctly classified 74.2% of cases. In other words, given the person's pattern of responses to questions about customer satisfaction and transformation from comparative values to asset values, the model was able to correctly predict in 74.2% of the cases whether former MCB customers with a visual impairment or blindness were closed with a particular employment outcome status. Finally, the odds ratio was calculated to obtain estimated coefficients for predicting employment outcomes. The odds ratios for customer satisfaction and transformation from comparative values to asset values in this model were 1.06 and 1.15 respectively. This means that an individual would be 1.06 times more likely to be employed as a unit increase in the score of CSS occurs. Similarly, an individual would be 1.15 times more likely to achieve a successful employment outcome as a one unit increase in the score of transformation from comparative values to asset values subscale occurs.

Research Question 2: Relationship between Degree of Functional Vision, Primary Source of Support, and Previous Work Experience and Employment Outcomes

A series of two by two chi-square analyses were conducted to examine the relationship between employment outcomes and the degree of functional vision, primary source of support, and previous work experience.

Chi-square analysis is a widely used statistic for testing whether a relationship between two categorical variables exists (Berman, 2002). Chi-square is defined as the difference between the observed (or actual) frequencies and the expected frequencies (Berman, 2002). According to this definition, the values of observed and expected

frequencies would be identical when no relationship exists between variables (i.e., employment outcomes and degree of functional vision, primary source of support, and previous work experience). That is, when no relationship exists between the variables, chi-square equals zero. The greater the relationship is, the greater the value of chi-square. Finally, it should be noted that the chi-square value is always positive and that it provides no information about the direction of the relationship (Berman, 2002).

Table 8 provides a summary of the relationship of degree of functional vision, primary source of support, and previous work experience to employment outcomes. The findings suggest that a similar proportion of participants in both successful and unsuccessful employment outcome categories indicated that they have enough vision to be able to read and write printed material with or without special aids. A large percentage of the individuals identified that they have enough vision to be able to read and write printed material, regardless of employment outcome category. The chi-square analysis revealed that no statistically significant relationship was found between the type of employment outcome and degree of functional vision ($\chi^{2\,(1,\,N\,=\,128)}\,=\,.051$, $p = .822$).

Regarding the primary source of support, a slightly higher proportion (56.3%) of individuals from the successful employment outcome category reported personal sources (e.g., personal earnings, family or friend's support, or interests) as their single largest economic source of support. A higher proportion (48.5%) of participants who were not employed when their cases were closed indicated public support (e.g., SSI [Supplemental Security Income], SSDI [Social Security Disability Insurance], or TANF [Temporary Assistance to Needy Family]) as their single largest financial source of support (See Table 8). Overall, 66 (55%) out of 120 individuals whose information regarding the

primary source of support was available, identified personal sources as their largest economic source of support. However, a chi-square analysis revealed that no statistically significant association was found between employment outcomes and primary source of support ($\chi^{2\,(1,\,N\,=\,120)\,=}$ .223, p = .637).

Table 8

Relationship of Degree of Functional Vision, Primary Source of Support, and Previous Work Experience to Employment Outcomes

Variable	Employed		Not Employed		χ^2	df	Sig.	Phi	Sig.
	N	Percent	N	Percent					
Degree of Functional Vision					.051	1	.822	-.02	.822
Usable Vision	46	51.7	21	53.8					
No Usable Vision	43	48.3	18	46.2					
Primary Source of Support					.223	1	.637	.043	.637
Personal Sources	49	56.3	17	51.5					
Public support	38	43.7	16	48.5					
Previous Work Experience					5.421	1	.02	.206	.02
Work Experience	72	80.9	24	61.5					
No work Experience	17	19.1	15	38.5					

Note: The number of cases available for primary source of support is 120 due to missing data.

In relation to previous work experience, 75% (n = 96) of all participants noted that they had a work experience prior to applying for MCB services. However, among the 89 individuals who were employed at the time of their case closure, 72 (80.5%) reported that they had a previous work experience. In contrast, only 24 (61.5%) out of 39 individuals who were not employed noted a work experience prior to applying for MCB services. A chi-square analysis revealed that there is a statistically significant relationship between previous work experience and employment outcomes ($\chi^{2(1,\,N\,=\,128)\,=}$

5.421, p = .02). A Phi test, which represents the correlation between two dichotomous variables, also suggested that there was a positive relationship between employment outcomes and previous work experience (Phi = .206). However, according to the Phi square value, which is analogous to r-square in multiple regression, only 4% of the variance for the employment outcome can be accounted for by previous work experience.

In summary, a stepwise binary logistic regression analysis indicated that customer satisfaction and transformation from comparative values to asset values of the AD-R scale were significant predictors of employment outcomes and correctly classified 74.2% of the cases. In examining the relationship between the employment outcomes, degree of functional vision, primary source of support, and previous work experience, a series of chi-square analyses found that only previous work experience was significantly associated with differences in employment outcomes among participants in this study.

Additional Analysis

This section examines whether customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience contribute to the difference in current work status among participants in this study because a significant number of participants (n = 21, 23.6%) who were employed at the time of their case closure reported that they are not currently working.

A stepwise binary logistic regression analysis was employed to examine whether customer satisfaction and acceptance of vision loss contributed to the difference in current work status among former MCB customers with visual impairments or blindness. The analysis yielded two statistically significant predictor variables (i.e., customer satisfaction and transformation from comparative values to asset values). As illustrated

in Table 9, results of the analysis suggested that the model was statistically reliable (χ^2 = 23.49, p = .000), indicating that these two predictors, as a set, reliably distinguished between customers who are currently working and those who are not. Similarly, the result of Hosmer and Lemeshow test was not statistically significant (χ^2 = 9.29, p = .318), which confirmed that the model was reliable. Further, a correlation between the two predictor variables used in the model was low (r = -.016), which indicates that there is no multicollinearity problem among the variables.

Table 9

Relationship of Customer Satisfaction and Transformation to Asset Values to Current Work Status

Variable	Unstandardized (B)	S.E.	Wald	df	Sig.	Odds Ratio
Constant	-6.251	1.525	16.804	1	.000***	.002
Customer Satisfaction	.067	.024	7.646	1	.06***	1.07
Transformation to Asset Values	.134	.041	10.585	1	.001**	1.14
-2 Log likelihood	151.414(b)					
Cox & Snell R^2	.168					
Nagelkerke R^2	.225					
Chi-square (Hosmer and Lemeshow test)	9.293	.318				
Classification	Percent					
Currently Working	79.5					
Currently Not working	49.1					
Overall Probability	66.4					

Note: *$p < .10$, ** $p < .0.5$

Results of the Wald test also revealed that customer satisfaction (Z = 7.65, p = .006) and transformation from comparative values to asset values (Z = 10.58, p = .001) reliably predicted employment outcomes among former MCB customers with visual impairments or blindness. The Cox & Snell (.168) and Nagelkerke (.225) adjustment

data indicate that approximately 17% to 23% of the variance in current work status can be explained by customer satisfaction and transformation from comparative values to asset values.

As per the classification data, the overall model using customer satisfaction and transformation from comparative values to asset values correctly classified 66.4% of cases. In other words, given the person's pattern of responses to questions about customer satisfaction and transformation from comparative values to asset values, the model was able to correctly predict in 66.4% of the cases whether former MCB customers with a visual impairment or blindness is currently working. Finally, the odds ratio for customer satisfaction and transformation from comparative values to asset values in this model were 1.07 and 1.14 respectively. This means that an individual would be 1.07 times more likely to work currently as a unit increase in the score of CSS occurs. Similarly, an individual would be 1.14 times more likely to have a job as a one unit increase in the score of transformation from comparative values to asset values subscale occurs.

A series of two by two chi-square analyses were conducted to examine the relationship between current work statuses and the degree of functional vision, primary source of support, and previous work experience (See table 10). The chi-square analysis revealed that no statistically significant relationship was found between current work status and degree of functional vision ($\chi^{2\,(1,\,N\,=\,128)\,=\,1.318}$, p = .251). Likewise, a chi-square analysis revealed that no statistically significant association was found between current work status and primary source of support ($\chi^{2\,(1.\,N\,=\,120)\,=\,2.174}$, p = .14). A chi-square analysis also revealed that there was no statistically significant relationship between

previous work experience and current work status of former MCB customers with visual impairments or blindness ($\chi^{2(1, N = 128) = .011}$, p = .918).

Table 10

Relationship of Degree of Functional vision, Primary Source of Support, and Previous Work Experience to Current Work Status

Variable	χ^2	df	Sig.
Degree of Functional Vision	1.318	1	.251
Primary Source of Support	2.174	1	.14
Previous Work Experience	.011	1	.918

In summary, a stepwise binary logistic regression analysis indicated that customer satisfaction and transformation from comparative values to asset values of the AD-R scale were significant predictors of current work status and correctly classified 66.4% of the cases. Further, a series of chi-square analyses found that degree of functional vision, primary source of support, and previous work experience were not significantly associated with differences in current work status among participants in this study.

CHAPTER 5

DISCUSSION

The purpose of this study is to examine the relationship of customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience to employment outcomes among former Michigan Commission for the Blind (MCB) customers with visual impairments or blindness applying Livneh's (2001) psychosocial adjustment to chronic illness and disability (CID) model. In order to accomplish this goal, the following research questions were examined:

1. What is the relationship between customer satisfaction and acceptance of vision loss and employment outcomes among former VR customers with visual impairments or blindness?

2. What is the relationship between degree of functional vision, primary source of support, and previous work experience to employment outcomes among former VR customers with visual impairments or blindness?

A unique feature of this investigation was the selection of former VR customers with visual impairments or blindness for whom the psychosocial adjustment to CID framework applies but with whom the theory had not been used. The Customer Satisfaction Survey and Revised Acceptance of Disability Scale were employed to investigate the relationship between the process variables of adaptation to vision loss (i.e., customer satisfaction and acceptance of vision loss) and the difference in employment outcomes among former Michigan Commission for the Blind (MCB) customers. A variable derived from the MCB RSA-911 database and two single items

were used to examine whether contextual variables (i.e., degree of functional vision, primary source of support, and previous work experience) were related to the difference in employment outcomes of former MCB customers who are visually impaired or blind.

Relationship of Customer Satisfaction and Acceptance of Vision Loss to Employment Outcomes

A result of the stepwise binary logistic regression analysis, using the total score of the CSS and four subscales of AD-R, revealed that customer satisfaction and the "transformation from comparative values to asset values" subscale were statistically significant in predicting employment outcomes of former MCB customers with visual impairments or blindness. In contrast, the other three subscales of the AD-R (i.e., enlarging the scope of values, subordination of physique, and containment of disability effects) were not found to be statistically significant in predicting employment outcomes. The Nagelkerke adjusted R^2 statistic showed that approximately 20% of the variance can be accounted for using the two significant predictors, which suggests that the model has a moderate strength of association. It was found that a model, using customer satisfaction and transformation from comparative values to asset values, was able to correctly categorize 74.2% of cases. In other words, given the individual's pattern of responses to questions about customer satisfaction and transformation of comparative values to asset values of the AD-R scale, it can be correctly predicted whether a VR customer with a visual impairment or blindness will be closed with a particular employment outcome status 74.2% of the time.

The value of the odds ratios also suggested that customer satisfaction and transformation from comparative values to asset values correctly predicted the

employment outcomes of MCB customers who participated in this study. The odds ratio for customer satisfaction and transformation from comparative values to asset values were 1.06 and 1.15 respectively. This means that an individual was 1.06 times more likely to be employed when a unit increase in customer satisfaction occurred. Similarly, an individual was 1.15 times more likely to be closed as an employment outcome when a one unit increase in the transformation from comparative values to asset values occurred. Based on these findings, it can be predicted that an individual who reports a high level of customer satisfaction and who emphasizes his or her own assets and abilities, rather than limitations, is more likely to be employed at the time when his or her case is closed. Likewise, an individual who reports a low level of customer satisfaction and who focuses on his/her limitations and weaknesses is less likely to be employed at the time of his/her case closure.

This study's findings for the level of customer satisfaction on employment outcomes are consistent with previous research, which suggests that customers who were closed as successfully employed were found to demonstrate higher levels of satisfaction than those who were not employed at the time of their case closure (Capella & Andrew, 2004; Kosciulek et al., 1997; Schwab et al., 1993). In particular, findings indicated that a significant gap was identified between the two groups regarding the perception of employment readiness after the completion of the VR program. Only 41% (n = 14) of participants who were not employed perceived themselves as being prepared to seek employment. In comparison, nearly 67.4% (n = 60) of the individuals who were employed expressed confidence that they were ready to seek employment.

It is widely believed that the degree to which the individual accepts his or her vision loss is a significant factor which must be considered in understanding employment outcomes among people who are visually impaired or blind (Dodds, 1993; Dodds et al., 1991; Dodds et al., 1993; Livneh, 2001; Livneh & Antonak, 1997). This hypothesis was further supported by findings of the current study. Participants who reported high levels of acceptance in the transformation from comparative values to asset values subscale were more likely to be employed. For instance, customers who were employed at the time of their case closure were less likely to believe that a visual impairment was the worst possible thing that can happen to a person than those who were not employed. This finding implies that individuals who utilize and focus on their remaining resources to a maximum degree will be able to accept their vision loss more easily, which in turn will have a positive effect on employment outcomes. This finding is consistent with previous research, which maintained that the acceptance of one's disability is one of the major determinants influencing rehabilitation outcomes (Dodds et al., 1991; Dodds et al., 1993).

Relationship Between Degree of Functional Vision, Primary Source of Support, and Previous Work Experience and Employment Outcomes

Results of a chi-square analysis indicated that no statistically significant relationship was found between employment outcomes and the degree of functional vision. A similar proportion of participants in both successful and unsuccessful employment outcome categories indicated that they have enough vision to be able to read and write printed material with or without special aids. These findings contradict those of Houtenville (2001) and Leonard et al. (1999), which indicated that individuals who were totally blind in both eyes had significantly lower employment rates and a higher

prevalence of SSDI and SSI receipt than those who are able to read and write print. Conversely, this study's finding is consistent with Vander Kolk (1989) study, which found that totally blind versus partially sighted did not play a role in customer employment outcomes.

Previous research indicated that a fear of losing cash or medical benefits is a significant barrier to employment among people with visual impairments or blindness (Houtenville, 2003; O'Day, 1999; Wilson et al., 2002). For example, O'Day (1999) found that individuals who actively pursued employment were less likely to apply for social security benefits than those who were not actively pursuing work or those who had actively pursued employment in the past but were beginning to lose hope. In contrast with these studies, findings of the present study indicated that there was no statistically significant relationship between employment outcomes and primary source of support. A slightly higher proportion (56.3%) of individuals from the successful employment outcome category reported personal sources (e.g., personal earnings, family or friend's support, or interests) as their single largest economic support. Similarly, a higher proportion (48.5%) of individuals who were not employed at the time of their case closure identified public support (e.g., SSDI, SSI, or TANF) as their largest financial source of support.

A chi-square analysis suggested that previous work experience was positively associated with employment outcomes in former MCB customers. In other words, individuals who had a previous work experience were more likely to be closed as employed than those who did not have any work experience. This finding supports previous studies which contend that many people with visual impairments or blindness

are not exposed to various work experiences, which later results in difficulty obtaining and maintaining employment (Crudden et al., 1998; Hanye, 1998). Among the 89 individuals who were employed at the time of their case closure, 72 (80.5%) reported that they had a previous work experience. In contrast, only 24 (61.5%) out of 39 individuals who were not employed noted a work experience prior to applying for MCB services.

Finally, in the examination of relationship of customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience to current work status among participants, only customer satisfaction and transformation from comparative values to asset values were found to be statistically significant. Neither three subscales of AD-R (i.e., enlarging the scope of values, subordination of the physique, and containment of disability effects) nor degree of functional vision, primary source of support, or previous work experience were not found to be significant in predicting current work status among former MCB customers who are visually impaired or blind. Knowing that a significant number of participants (n = 21, 23.6%) who were employed at the time of their case closure are not currently working, further research is warranted to identify factors, which contribute to their current unemployment.

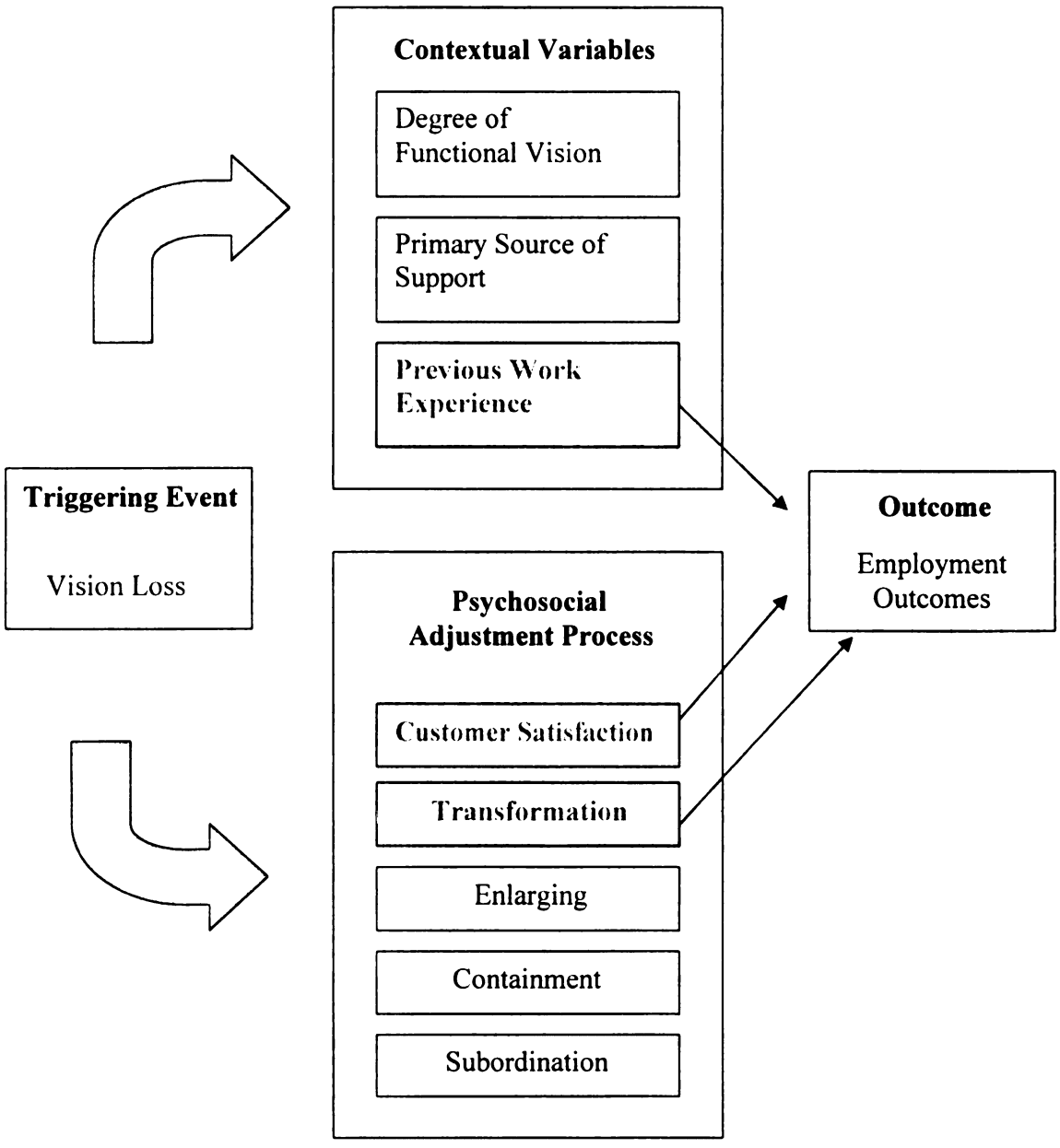
The current study examined the relationship between employment outcomes of customers with visual impairments or blindness and a specific set of variables by applying Livneh's (2001) conceptual framework of psychosocial adjustment to CID specific to people with visual impairments or blindness. As Figure 2 illustrates, findings of the present study supported the notion that psychosocial adjustment to CID is a useful framework for evaluating the relationship of customer and VR process-related variables

to employment outcomes. Results of a stepwise binary logistic regression analysis indicated that customer satisfaction and transformation from comparative values to asset values of the AD-R scale were found to be positively related with employment outcomes among MCB customers. However, it is important to note that three subscales of the AD-R (i.e., enlarging scope of values, containment of disability effects, and subordination of physique) were not significant predictors of employment outcome.

Results of chi-square analyses indicated that previous work experience was positively associated with employment outcomes among former MCB customers. However, the degree of functional vision and primary source of support were not found to be associated with employment outcomes. In conclusion, Figure 2, based on the findings in the current study, indicates that MCB customers who reported high levels of customer satisfaction, who focused on their remaining assets, and/or who had a work experience prior to applying to the MCB services were more likely to be employed at the time when their case was closed.

Figure 2

Application of Findings to Psychosocial Adjustment to CID Framework



Limitations of the Study

It is important to appreciate a number of limitations in this study. The first limitation involved the generalizability of results. This study was limited to former MCB customers with visual impairments or blindness who were closed either as employed or not employed during the fiscal years 2003 and 2004. Although the response rate of the survey was reasonably high (30.4%), the number of participants (n = 128) in this study did not meet the sample size of 150 required by the apriori power analysis (Cohen, 1988). Thus a second limitation is that the lack of significant findings may be due to low statistical power.

A third limitation relates to the weaknesses of the instruments. Instruments measuring degree of functional vision and previous work experience need to be further refined based on widely recognized definitions. Similarly, total scores of four subscales of the AD-R used in this study to determine levels of acceptance are unidimensional, which requires a further validation. A fourth limitation is that this study failed to include individuals who were 64 years or older and/or individuals who were closed as homemakers at the time of their case closure. Considering that age-related macular degeneration is one of the leading causes of the visual impairment (Ward & Johnson, 1997), and that an increase in the labor market participation among the elderly becomes a trend, Future research examining employment outcomes of this population is encouraged to eliminate the age limit from the inclusion criteria for the population to study.

An additional limitation involves the selection bias. That is, only 39 (15.2%) of 257 customers who were from the unsuccessful employment outcome category, as compared to 89 (29.4%) of 303 individuals who were closed as employed, participated in

this study. Considering the fact that customers who were not employed at the time of their case closure comprised nearly 46% of the target population, 15.2% figure did not adequately represent views of customers who were from the unsuccessful employment outcome category. Therefore, readers are cautioned when interpreting findings in this study since results may differ if this study had more individuals from unsuccessful employment category.

Implications for Vocational Rehabilitation Practice

One of the most significant findings of this study was that differences in levels of customer satisfaction were significant in predicting employment outcomes among former MCB customers with visual impairments or blindness. This finding supports a need for the development and implementation of the rehabilitation service model, which(a) promotes customer participation in the VR process, (b) improves customer-counselor relationships, and (c) enhances the quality of service during obtainment of a successful employment outcome (Harkins & Moyer, 1997). It was also found that customers who were from the unsuccessful employment outcome category expressed a significantly higher level of discontent in all areas of customer satisfaction, especially in job search and employment readiness. A follow-up investigation with customers who were not employed at the time of their case closure is recommended in order to understand and respond to factors related to their dissatisfaction. Finally, dissemination of findings regarding customer satisfaction to MCB staff would aid VR personnel in understanding how customers perceived agency performance.

Another important finding in this study is that the degree to which an individual can focus on his or her strengths, rather than limitations, influenced employment

outcomes of people who are visually impaired or blind. Rehabilitation practitioners working with people who are visually impaired or blind, therefore, are encouraged to focus on the remaining assets and strengths of their customers in order to increase the probability of acquiring a positive employment outcome (Groomes & Leahy, 2002).

Finally, a previous work experience was positively associated with a successful employment outcome. This is consistent with findings of previous research which stated that early exposure to work and obtaining and maintaining a job were positively correlated among people who were congenitally blind (Hanye, 1998). The findings of the current study imply that effective work preparation programs, based on collaboration among a customer, a rehabilitation counselor, and other related professionals, is essential for a successful employment outcome for individuals with blindness.

Suggestions for Future Research

The results of the current study point toward a range of directions for further research. Although it was suggested that a high level of customer satisfaction and an individual's ability to focus on remaining values and strengths contributed to positive employment outcomes among former MCB customers, more research is required to further investigate the impact of customer satisfaction and level of acceptance of vision loss on employment outcomes. For example, a follow-up study using qualitative methods such as focus group interviews with customers who were closed without achieving a positive employment outcome is encouraged in order to understand and respond to factors related to their dissatisfaction. This, in turn, may lead to successful employment outcomes. That is, considering that individuals who were not employed at the time of their case closure had much lower participation rate in this study than those who were

employed, a follow-up study involving individuals from the unsuccessful employment outcome category will provide researchers and rehabilitation practitioners with much needed information to assist them in obtaining successful employment outcomes.

As suggested by Capella and Andrew (2004), future research should also introduce the concept of internal marketing when investigating the impact of customer satisfaction on employment outcomes. The rationale for this line of thought is that a high level of job satisfaction among rehabilitation counselors will improve their performance at work, leading to higher levels of customer satisfaction, which in turn produces more desirable employment outcomes (Capella & Andrew, 2004). Thus, it is recommended to examine how the level of counselor job satisfaction (e.g., pay, an opportunity to advance, supervision) influence the level of customer satisfaction and how satisfaction in turn affects employment outcomes among VR customers who are blind or visually impaired. Knowing that 21 (23.7%) out of 89 participants who were employed at the time of their case closure are not currently working, it is also recommended that an instrument measuring customer satisfaction should include items that evaluate the level of satisfaction with postemployment services as well as overall job satisfaction.

Although found to be statistically insignificant, it is highly recommended that future research should further examine the relationship of the three remaining subscales of the AD-R (i.e., enlarging scope of values, containment of disability effects, and subordination of physique) to employment outcomes among former customers with visual impairments or blindness. Knowing that demonstrating a satisfaction with remaining values (E-subscale) and emphasizing one's own assets and strengths (T-subscale) were closely related to each other (Groomes & Linkowski, In press), it was

surprising to find that enlarging the scope of values subscale was not a significant predictor of employment outcome. In addition, research investigating the level of acceptance of vision loss pre and post-VR program will expand understanding of how VR experiences contribute to an individual's level of vision loss acceptance and its relationship to employment outcome.

Considering that a significantly larger number of customers who are visually impaired or blind are closed as homemakers than any other disability group (Warren, Giesen, & Cavenaugh, 2004), future research should also investigate whether the difference in customer satisfaction and acceptance of vision loss exists between individuals who are closed as homemakers, those who are closed as competitively employed, and those who are not successfully closed. It is also recommended that factors such as secondary disability or the onset of vision loss should be taken into consideration when examining employment outcomes of individuals who are visually impaired or blind (Welsh & Tuttle, 1997).

A universally agreed upon definition that can appropriately measure functional vision and previous work experience is needed to further investigate whether degree of functional vision is associated with employment outcomes in the target population of this study. Finally, replicating this study with similar participants may further validate CSS and AD-R scale in predicting employment outcomes based on Livneh's (2001) conceptual framework of psychosocial adjustment to CID.

Conclusion

This study was the first to establish a model that is useful for predicting employment outcomes among people with visual impairments or blindness from

customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience. It provided evidence that a customer who demonstrated high levels of customer satisfaction was more likely to achieve a positive employment outcome. Evidence from this study also indicated that acceptance of vision loss is related to employment outcomes, although not all aspects of the construct were significantly related to employment outcome. Similarly, results revealed that individuals who had work experience prior to applying for VR services were more likely to achieve a positive employment outcome than those MCB customers who did not have work experience.

This study also demonstrated the importance of connecting psychosocial and contextual-related variables when examining employment outcomes among VR customers with visual impairments or blindness. Finally, given that rates of unemployment and underemployment among people with visual impairment remain high, findings of this study may assist VR counselors and researchers with enhancing employment outcomes among people with visual impairments or blindness.

APPENDICES

Appendix A

Consent Form

Appendix A

CONSENT FORM/COVER LETTER

Predicting Employment Outcomes among Former Vocational Rehabilitation Consumers with Vision Impairment from Customer Satisfaction, Acceptance of Vision Loss, Degree of Functional Vision, Primary Source of Support, and Previous Work Experience

Dear Michigan Commission for the Blind (MCB) Customer:

It is a pleasure to introduce myself to you. My name is Song-jae Jo. I am a doctoral student in the Rehabilitation Counselor Education program at Michigan State University (MSU). As a blind person myself, I elected to study factors impacting employment outcomes of people with visual impairments or blindness for my dissertation research and I am seeking your participation in my project.

You are asked to participate in a project designed to evaluate the relationship between customer satisfaction, acceptance of vision loss, degree of functional vision, primary source of support, and previous work experience to employment outcomes for people with visual impairments or blindness. Your input in this study is valuable since MCB and I may gain insight into how your perceived level of satisfaction with the vocational rehabilitation process, as well as psychological and environmental factors arising from vision loss influence employment outcomes of people with visual impairments or blindness.

Your participation in this study is entirely voluntary. The survey will take approximately 25-30 minutes to complete. Please be assured that although your name is part of the database, all information you share will be kept confidential and it will not be shared with your MCB counselor or anyone at MCB. All personally identifying information will be kept confidential. All data collected will only be used in grouped form. This means that all analyses will be done with grouped data and all reports will address only group experiences and outcomes. No individual will ever be named in the reports and

manuscripts. Your privacy will be protected to the maximum extent allowable by law. You may refuse to participate in any or all parts of this study without penalty.

You can choose your preferred method of communication (i.e., print, braille, computer disk, or audio tape) to complete the questionnaire. You may choose to complete the survey by calling me at (517) 355-8001 if you are unable to complete the questionnaire with any of the alternative formats provided. Please take a few moments to complete and return the enclosed survey in the pre-addressed, postage-paid envelope.

If you have any questions or concerns you would like to discuss, now or in the future, please feel free to contact Song-jae Jo by address: 921B Cherry Lane, East Lansing, MI 48823, phone: (517) 355-8001, or email: josongja@msu.edu. You may also contact John F. Kosciulek, PH.D., Principal Investigator of this study by phone: (517) 353-9443, email: jkosciul@msu.edu, or regular mail: 452 Erickson Hall, East Lansing, MI, 48824. If you have questions or concerns regarding your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish - Peter Vasilenko, Ph.D., Chair of the University Committee on Research Involving Human Subjects (UCRIHS) by phone: (517) 355-2180, fax: (517) 432-4503, e-mail: ucrihs@msu.edu, or regular mail: 202 Olds Hall, East Lansing, MI 48824.

By completing and returning the questionnaire, you indicate your voluntary agreement to participate in this study.

Sincerely,

Song-jae Jo, Doctoral Candidate
Rehabilitation Counselor Education
Michigan State University

Appendix B

INSTRUMENT OF THE STUDY

Appendix B

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I. Customer Satisfaction Survey

Read each statement below and circle the number that indicates to what extent you agree or disagree with the statement.

1. The choices of services available from the Michigan Commission for the Blind (MCB) were sufficient to meet my needs.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

2. I had the final say in the selection of a vocational goal.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

3. I had the final say in the selection of service providers.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

4. My rehabilitation plan was individualized to meet my goals.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

5. I received services from the MCB without excessive waiting.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

6. The MCB staff returned my phone calls promptly.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

7. The MCB staff was knowledgeable about my needs as a person who is blind.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

8. The MCB staff helped build my confidence in my abilities.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

9. The services the MCB provided were adequate to help me secure employment.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

10. The MCB staff gave me the help I needed to find employment.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

11. Upon completion of my vocational rehabilitation program, I was prepared to seek employment.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

12. As a result of the services provided by the MCB, my present work situation is better than it was before I began the program.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

13. The support I received from the agency was adequate to ensure continued success.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

14. I am pleased with the overall outcomes of my experience in the vocational rehabilitation program provided by the MCB.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

II. Acceptance of vision loss

Read each statement below and circle the number that indicates to what extent you agree or disagree with the statement.

1. With my vision loss, all areas of my life are affected in some major way.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

2. Having vision impairment, I am unable to do things like people without disabilities do.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

3. My vision impairment will not prevent me from making good in life.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

4. Because of vision loss, I have little to offer other people.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

5. Good physical appearance and physical ability are the most important things in life.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

6. Although vision impairment may be limiting in some ways, there are still many things a person with a vision impairment can do.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

7. No matter how hard I try or what I accomplish, I could never be as good as the person who does not have my disability.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

8. It makes me feel very bad to see all the things that people with vision impairment can do that I cannot.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

9. The most important thing in this world is to be physically capable.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

10. Because of my vision impairment, other people's lives have more meaning than my own.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

11. Because of my vision impairment, I feel miserable much of the time.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

12. Though I have a vision impairment, my life is full.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

13. The kind of person I am and my accomplishments in life are less important than those of persons without disabilities.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

14. A vision impairment affects a person's mental ability.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

15. Since my vision impairment interferes with just about everything I try to do, it is foremost in my mind practically all of the time.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

16. There are many things a person with vision impairment is able to do.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

17. My vision impairment in itself affects me more than any other characteristic about me.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

18. There are many more important things in life than vision impairment and physical appearance.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

19. Almost every area of life is closed to me.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

20. My vision impairment prevents me from doing just about everything I really want to do and from becoming the kind of person I want to be.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

21. I feel like an adequate person regardless of the limitation of my vision impairment.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

22. My vision impairment affects those aspects of life that I care most about.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

23. A disability such as mine is the worst possible thing that can happen to a person.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

24. You need a good and whole body to have a good mind.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

25. There are times that I completely forget that I have vision impairment.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

26. If I didn't have vision impairment, I think I would be a much better person.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

27. When I think of my vision impairment, it makes me so sad and upset that I am unable to do anything else.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

28. People with vision impairment are able to do well in many ways.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

29. I feel satisfied with my abilities and my vision impairment does not bother me too much.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

30. In just about everything, my vision impairment is annoying to me so that I can't enjoy anything.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

31. Physical wholeness and appearance make a person who s/he is.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

32. I am aware of limitations resulting from my vision loss, and I feel that I can live a full life.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

III. Degree of functional vision

Can you write and read printed materials with/without special aids?

Yes _____ No _____

IV. Previous work experience

Have you had any work experience at any time prior to applying for the MCB's services?

Yes _____ No _____

V. Current Work Status

1. Are you working now? Yes _____ No _____

2. If yes, what is your job title? _____

Thank you for your time and participation in this project. Please remember, if you have any additional comments or questions you can contact Song-jae Jo at 517-355-8001 or via e-mail at josongja@msu.edu.

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