Blind and Visually Impaired Adult Rehabilitation and Employment Survey: Final Results

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Abstract

Individuals who are legally blind or visually impaired in the United States have long suffered high rates of unemployment. The purpose of this study was to determine the current employment status of these individuals and to analyze its consistency with federal reports. The study also examined demographic factors, education, civic involvement, and rehabilitation experiences of this population in order to determine whether some of the factors could be identified as contributing to the employment outcomes. Results showed that the employment rate for individuals who are legally blind/visually impaired is 37%, which is consistent with previous research. Findings show that a gender gap still exists, with a significant difference in annual earnings between men and women. Education and rehabilitation-related factors seemed to impact employment outcomes; where higher educational attainment is associated with better employment outcomes. In addition, those individuals who were trained under the Structured Discovery approach were more likely to be employed and to have higher earnings than those who did not. Finally, for individuals who read braille on a weekly basis and used a white cane, the likelihood of being employed and receiving higher earnings was higher than those who did not use these tools.

**Adult Rehabilitation and Employment Survey**

This study sought to describe the current employment status of individuals who are blind and visually impaired (VI) in the U.S. and to examine its consistency with federal reports. In addition, it explored those factors that might have an impact on employment status for this section of the population. In order to do so, a summary of the most current federal data is included, followed by a review of the literature that analyze the employment situation of people with disabilities in the U.S. and, more specifically, those factors related to an increase in employment outcomes by blind and VI individuals.

**Employment Status of Blind and VI Individuals: Federal Reports**

The 2010 U.S. Census reports that the total population in the United States is 308,746,538. According to the provisional report for the 2010 National Health Interview Survey, 21.5 million American adults age 18 and older reported experiencing vision loss (defined as individuals who reported that they have trouble seeing, even when wearing glasses or contact lenses, as well as those who reported that they are blind or unable to see at all). By December 2011, the Bureau of Labor Statistics (BLS) reported that approximately 2 million individuals from 16 to 64 years old were identified as having vision loss according to the Current Population Survey (CPS) for all working age adults (16 to 64 years of age). Of them, 63.6% were not in the civilian labor force (i.e., those who were identified as "not in the labor force" were not actively looking for work during the reported month, and thus not included in the unemployment rate, even though they were not employed as well). Of the 36.4% who were in the labor force, 13.8% were unemployed. However, the employment to population ratio showed that of the 2 million working age adults with vision loss, only 31.3% were employed (American Foundation for the Blind, 2012). These data are similar to that of Bell (2010) who reported that by 2007, only 37% of adults who were legally blind exiting the vocational rehabilitation (VR) system were achieving competitive employment.

The present study analyzed how the above reports are reflected in the current employment situation of blind and VI individuals. And, more importantly, whether specific rehabilitation, education, and/or civic factors could be identified that might be indicative of increased employment.

**Disability, Employment, and the Vocational Rehabilitation System**

In the pursuit of employment, each person, especially those with significant disabilities, has to navigate a whole host of social services, institutions, and processes that are aimed at assisting them in achieving their vocational goals. These include the state-federal VR process (Schriner, 2001; Schroeder, 2000); public financial support, such as Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI) (Vaughn & Omvig, 2005); and an entire array of education and employment preparation institutions (Amato, 2009; Hershenson, 1998; Jeanmarie & Strauser, 2000). For those who have successfully achieved employment, these social systems worked, in some form or fashion, to facilitate success. While for many others, these same systems have served as a land minefield, with continual road blocks, delays, and dead ends.

The most commonly reported research in the area of employment outcomes comes from secondary analysis of existing databases, such as the RSA VR closure system, to identify variables that correlate with employment outcomes. For example, Randolph (2004) found that disability status was the variable that presented the strongest negative correlation with employment. The author determined that disability status was a strong negative predictor of employment, particularly of being competitively employed. He found that females with a disability, who were less educated and who had young children, were less likely to be employed.

A study by Ozawa and Yeo (2006) compared the employment outcomes of individuals with mild and severe disabilities with those having no disability (it is important to notice that of the factors that the authors used to classify individuals into mild or severe disability groups, the use of a wheelchair, white cane, or similar aid for more than 6 months was one of the most relevant). The results showed that the rate of employment was inversely related to the degree of disability. From the group of respondents with no disability 83.04% were employed, while those in the mild disabilities group and the severe disabilities group were employed at 69.94% and 51.54% respectively. These authors found, as did Randolph (2004), that disability affects two main aspects of work performance: the likelihood of working and monthly earnings. The probabilities of working were significantly less for respondents with severe disabilities than for those with mild or with no disability. Monthly earnings of both respondents with mild disabilities and with severe disabilities were lower than those of people with no disability. According to Baldwin and Schumacher (2002), not only the chances of obtaining a job and earnings are negatively correlated to disability status, but also job mobility. Workers with disabilities were more likely to experience involuntary job changes than nondisabled workers.

Martz and Xu (2008) analyzed the demographic and service-related predictors of employment among individuals with disabilities who received VR services and who exited from a state-federal system in a U.S. southern state. Having a sample composed of clients who received VR services from the Tennessee Division of the Rehabilitation Services (TDRS) during the years of 1998-2004, this study showed that those individuals with learning disabilities had the highest employment rate (93.3%) and the ones that presented the lowest employment rate were individuals with visual disabilities (78.7%). For this later group, gender and age were significant predictors of employment outcome, with women being less likely to be employed.

The next section summarizes findings on predictors of employment specifically for the blind and VI population.

**Blindness, Employment, and the Vocational Rehabilitation System**

Warren-Peace (2009) analyzed outcomes and predictors of employment and the differences between clients who were legally blind and clients with other disabilities. With this framework, the RSA-911 data for Fiscal Year 2007 was used. Results showed that approximately 34% of consumers with legal blindness were closed competitively, while 29.5% of individuals in this same group were closed in non-competitive employment (i.e., homemaker and unpaid family worker). This is in sharp contrast to other disability groups, where non-competitive employment was only 1.5%. Of the total of noncompetitive closures, clients who were legally blind represented 43.6%. This suggested that out of the 19 disability types included in this study, just the legally blind group accounted for a significant amount of the total of noncompetitive closures in FY 2007.

According to the literature, there are several factors that predict employment for the blind and VI. Among them, educational level, age, training in blindness skills, and visual status remain consistent across the research studies. Leonard, D'Allura, and Horowitz (1999) found that both achieving a higher educational level and attending an integrated school setting for most of one’s schooling was associated with being employed. In addition, the use of printed material as a primary reading medium, employment related skills (computer, typing, and use of public transportation), psychosocial variables (overall satisfaction with social contact and receipt of encouragement from family and friends), vision rehabilitation service, and technology training were associated with being employed. In relation to those factors that predicted employment in higher level positions, they identified higher level of education, technology training, orientation and mobility (O&M) training, and fewer hours of rehabilitation teaching.

In addition to the receipt of education services that resulted in a certificate or degree, Capella-McDonnall (2005) concluded that having worked since the onset of the disability, the reason for applying to rehabilitation for services, and a high-quality relationship between the client and rehabilitation counselor were the greatest predictors of an employment outcome. In contrast, McDonnall and Crudden (2009) concluded that an involvement with the VR counselor was not associated with employment. In this later study, the results showed that work experience, academic competence, self-determination, use of assistive technology, and locus of control were all significant predictors of employment in transition-age youth with blindness. Cavenaugh, Giesen, and Steinman (2006) also found that the education level reached and the age at the time of application, followed by the presence of a secondary disability, and race/ethnicity were strong predictors of employment.

Regarding visual status, Leonard et al (1999) found that this factor had an important impact on employment outcomes, since those individuals who were blind were more likely to be employed in higher level positions than those who were partially sighted. A study by Darensbourg (2013) also revealed that the severity of vision loss was a statistically significant predictor of competitive employment outcomes, however, in this study those consumers with lesser vision loss where more likely to be competitively employed. On the other hand, the study of Cavenaugh et al (2006) showed that the severity of the disability was the strongest predictor of acceptance for VR services.

The results of the study conducted by Warren-Peace (2009) revealed that the likelihood of obtaining competitive employment after receiving services from VR was greater for those consumers who were legally blind without a secondary disability; were male; African American, Hispanic, or Multiple race/ethnicity; had a personal income as a primary source of support at application; and attained a special education certificate or college degree. As well as visual status, Darensbourg (2013) found that the variables that were the most statistically significant predictors of competitive employment outcomes for individuals with blindness or visually impairment were weekly earnings at application, source of referral (self-referral), gender (male), and not receiving Medicaid.

Besides predicting competitive employment, some of the factors mentioned so far also predicted higher earnings. For consumers with visual impairments who were competitively employed through the state-federal VR system during Fiscal Year 1997, Capella (2001) concluded that age, educational level, and case expenditures were some of the factors accounting for differences in earnings. Of these three, age was the most significant predictor; clients with visual impairments that were older tended to receive lower earnings. Education also had impact on earnings, since the higher the level of education, the higher the earnings. Finally, some of the variance in earnings was explained by case expenditures, whereby the greater amount of money that was spent on a case, the higher the earnings at closure was for consumers.

An additional factor that seemed to have a significant impact on employment outcomes and earnings for individuals who were blind and VI was the type of agency (separated or combined/general) that served these clients. Cavenaugh, Giesen, and Pierce (2000) concluded that the mean earnings at closure of legally blind consumers were significantly higher in separate agencies than in combined agencies. In addition, Warren-Peace (2009) found that the type of agency seemed to be a relevant predictor of competitive employment outcomes. Those consumers who received services from a separate agency for the blind had more chances to be closed in an integrated work setting. Capella (2001), however, found that the type of agency that served these clients was not a significant factor impacting on earnings.

From a different perspective, Golub (2006) studied the factors that contributed to successful work experiences for employees from the perspective of their employers. This study revealed that, according to the employers, important factors included employee being comfortable with his/her disability, being an ambassador for blindness by eliminating awkwardness in relationships, and insisting on being held to the same standard as his/her coworkers. In addition, this study found that the key to success for employees was skills of blindness. He/she should possess updated O&M, Braille and assistive technology skills, and a variety of strategies to cope in case a system fails. Furthermore, during interviews candidates should demonstrate their competence and have specific ideas for how to manage the details of the work and transportation challenges.

The literature also accounts for studies that have analyzed those factors that are considered barriers for employment. Crudden and McBroom (1999) for example, found that attitudes of employers and the general public, transportation problems, and a lack of access to print, adaptive equipment, and accommodations were the most relevant. Visual status also seemed to play a role when analyzing barriers to employment since individuals who were partially sighted had more issues with transportation than those who were totally blind. Those who were blind as opposed to VI, however, had more problems with the skills or attitudes of rehabilitation counselors or placement staff. When asked about the most important thing the rehabilitation counselor did to help the participants to find employment, they mentioned help in locating jobs, arranging interviews, and providing job references; provision of education and training or equipment; and provision of counseling and emotional support. However, of the total sample, only 39% of the participants believed that VR services helped them to obtain their jobs. The rest of them believed that rehabilitation services helped them to improve their performances, that the services made them more competitive with those nondisabled workers, and that the services helped them to maintain their jobs.

Finally, Bell (2010) offers one of the most current analyses on the competitive employment rates for VR consumers who were legally blind. Results from fiscal year 1997 to 2007 (obtained by using the RSA-911 data system) showed an average employ­ment rate of 31.79%, which was significantly higher than the 25.1% reported by Cavenaugh (1999) based on data from FY 1995. In fact, the Competitive Consumer Rates have shown a steady climb from 27% in 1997 up to a high of 37% in 2007. In addition, earnings of consumers had also increased. Some of the factors that seemed to impact employment outcomes were gender, race, education, and veteran status. Results demonstrated that men earned $0.63 more an hour than women in 1997, and this increased by 2007 to a $0.86 difference on average. In addition, while the average spread between earnings was about $6.00 in 1997, the variability in earnings had increased to nearly $12 for men but only $8 for women. On the other hand, Native Americans had less employment in 1997 than the other racial groups, and this group remained substantially behind by 2007. Asian/Pacific Islanders earned the highest average wages and Black/African Americans earned the lowest average hourly rates. Those with a master’s degree or higher had almost a 40% greater chance of being employed and had $4.00 an hour more in earnings than did individuals with less than a high school degree. In addition, American veterans were underrepresented in the RSA-911 data system, and where they were identified the rates of employment were 19%.

**White cane for mobility.** When analyzing the impact of using a cane and having received O&M training on employment outcomes, this factor appears to be important when obtaining a job in higher level positions (Leonard et al 1999). In addition, from the perspective of employers, having O&M skills was a factor that contributed to successful work experiences for employees (Golub, 2006). In his literature review, Miller (2002) addresses the important role that both O&M instructors and rehabilitation teachers have as employment resources. They not only provide the training that leads to employment but since they spend more time with the consumers than the counselor in a community-based setting, they have the chance to explore a consumer’s vocational interests and complement the rehabilitation counselor’s job.

As it is well known in the field of O&M, there are two main philosophical approaches that outline two different training methods: the conventional approach and the alternative approach or Structured Discovery Cane Travel (SDCT) (Omvig, 2005). SDCT instructional service offers to individuals who are blind or VI the opportunity to learn independence and build self-confidence in a meaningful and permanent approach. SDCT is rooted on non-visual techniques, problem- solving skills, and confidence-building learning experiences (National Blindness Professional Certification Board, 2012). It is based on experiential learning and it remains neutral regarding the instructor’s perceptual experience, transferring the focus on the instructor’s vision to the cognitive processes that are involved in an orientation and mobility lesson. The success of cane travel depends upon the way in which the student is able to cognitively process the information (Mettler, 2008). SDCT also applies principles of the Socratic questioning, (i.e., the asking of strategic questions to guide the learner in solving the problem autonomously), and strongly relies on the role modeling of non-visual techniques, which encourages the discrediting of public misconceptions about blindness (National Blindness Professional Certification Board, 2012).

The literature is not extensive about the effectiveness of the different types of O&M training that those individuals who are blind or VI receive and their impact on employment outcomes. However, in his study, Aditya (2004) made an attempt to evaluate the effectiveness of the SDCT approach. The author hypothesized that because of the philosophical and methodological differences between the conventional and alternative approaches related to functional independence, individuals trained in the alternative approach will score higher on a measure of functional independence than those trained in the conventional approach. In this survey the data about the method of training was not directly obtained, however, it was replaced by examining the variable of cane size, given that the “NFB” canes are employed almost exclusively in the alternative approach, while the shorter, folding, aluminum or graphite canes are predominately utilized in conventional programs. Therefore, the item of cane size was recoded into a dichotomous variable to reflect the two training approaches. The descriptive statistics revealed that the differences were in the expected direction. The within-group variances between those who were trained in the alternative approach and those who were trained in the conventional approach were noticeably different. Aditya (2004) reported that individuals who were trained with a long, white cane had significantly higher ability and activity in matters of independent living.

**Braille.** One of the most cited studies in the field conducted by Ryles (1996) revealed that reading Braille was one main skill that predicted, for congenitally legally blind adults, higher employment rates and higher education levels than reading print as original medium. The main results showed that those individuals that utilized Braille as their primary reading medium had a significantly lower unemployment rate (44%) that those who utilize print as the original reading medium. The author affirmed that even though reading Braille as a primary medium did not increase an individual’s opportunities for employment, those who learned Braille when they were children and used Braille extensively as their primary reading medium, were employed at a higher rate. However, those who learned Braille after using print did not have a higher employment rate than those who never read Braille. According to Golub (2006), employers believed that possessing updated Braille skills represented an important factor that contributed to successful work experiences for their employees.

Papadopoulos and Koutsoklenis (2009) conducted a study with higher education Greek students and graduates who were VI in order to explore the use of different reading media. They found out that the most significant predictors of the frequency of use of Braille were visual status, age at the loss of sight, and training in Braille. Specifically, the frequency of use of Braille declined with the increase in the age at which sight was lost, but increased with training in Braille. The authors concluded that a well-established tendency to use technology could lead to a further decline in the frequency of Braille use in Greece. For this reason they stated that efforts should be made to enhance the use of Braille, and since in Greece the frequency of Braille use decreases with the increase in age at time of loss, they recommended the development of intensive Braille courses for people who become visually impaired at a later age.

Little agreement exists over the type, nature, intensity, structure, and model of training that is most effective (Ryles, 2008). Some training models report that the learning of Braille is a requirement for all individuals who enter the program (Mayo, Allen, & Deden, 2008) while others report that only 20% of individuals attending training elect to learn Braille (Ponchillia & Durant, 1996). It is commonly reported that 85% of adults who read Braille are employed (Ryles, 1996; Spungin, 1990), yet disagreement still rages over what constitutes best practice for the teaching of Braille.

**Consumer and civic involvement.** Existing literature has demonstrated the key role that family support plays in sustaining effective outcomes (Bennetts, 2003; Whelley, Radtke, R., Burgstahler, S., & Christ, T., 2003). The role of advisors, peers, and other peer-to-peer interactions has also been cited as important in the rehabilitation process (Hall & McGregor, 2000; Whelley, et al., 2003). Both formal as well as informal models of mentoring have been demonstrated as effective mediators in education, employment, and career decision making (Bell, 2012; Hall & McGregor, 2000; Marks & Feeley, 1995). Community and civic participation, such as religious affiliation, social clubs, and civic organizations, further help to support interest and engagement in employment (Nagle, 2001; Vaughn & Omvig, 2005). Finally, specifically for members of the target population, self-reports and anecdotal evidence suggest that membership in a consumer organization is an essential element in the rehabilitation process (Beck-Winchatz & Riccobono, 2008; Omvig, 2005; Phelps, 2005). However, the stories of many individuals who are blind tell of families who were over protective (Omvig, 2002), of communities that put up restrictions (Ferguson, 2001), and of support groups that promoted unemployment and dependence (Vaughn & Omvig, 2005). What research needs to accomplish is to tease out how these factors serve as facilitators rather than deterrents so that training and education can impact greater growth and evolution.

Crudden and McBroom (1999) conducted a study that demonstrated that among the reasons participants thought they were successful in overcoming barriers to employment was the importance of developing networking and mentoring opportunities. Role models appeared to be a relevant variable in maintaining motivation. They serve as examples to others and provide helpful insight on how to address some of the employment barriers. According to participants in this study, rehabilitation providers usually do not encourage mentoring opportunities or contact with role models who are visually impaired. The authors stated that referrals to consumer organizations could assist those who seek employment in generating support systems.

Even though there is a lack of empirical studies about the impact of a consumer affiliation on employment outcomes, there are sufficient testimonies of blind individuals who express the opinion that their involvement in a consumer organization changed their lives completely. Omvig (2002) stated the NFB has been a key in his life and the lives of many blind individuals. He emphasizes the importance that competent and successful blind people who are part of this organization have as positive role models. These role models are the living proof that with proper training and opportunity, blind people can live normal, successful, and meaningful lives. And this is what they pass along to the new generations.

**Purpose of the study.** The purpose of the current study was to capture a snapshot of the employment status of individuals who are legally blind and/or VI across the United States. Furthermore, this study sought to examine demographic factors, education, civic involvement, and rehabilitation experiences of this population in order to determine whether any state factors (i.e., those which are changeable through education or training) could be identified as contributing to the employment outcomes of these individuals.

**Research Questions.** The following research questions served as the guiding principles for this study.

Q1: What is the employment rate for adults who are blind/VI in a national sample, and how does this rate compare to existing research findings on the subject?   
Q2: Are specific demographic factors (i.e., age, gender, racial identity, visual status) associated with greater or lesser rates of employment and wages for this population?   
Q3: Can social and civic factors (i.e., civic involvement, affiliation with consumer organizations) be identified that are associated with higher rates of employment and wages for this population?  
Q4: Can education and rehabilitation-related factors (i.e., college, adjustment training, etc.) be identified that are associated with increased rates of employment and wages for this population?

**Method**

**Participants**

The participants for this survey were drawn from legally blind and VI adults of working age (i.e., 18-70 years old) from across the United States. Complete data were obtained from 1,056 individuals who were an average age of 46.47 years (SD=13.81, Range=18-87). These individuals were representative of 595 females (56.34%) and 461 males (43.66%), who were 90 African Americans (8.52%), 35 Asian Americans (3.31%), 56 Hispanics/Latinos (including Puerto Ricans) (5.30%), eight Native Americans/Alaska Natives (0.76%), four Native Hawaiians/Pacific Islanders (0.38%), 836 Whites or Caucasians (79.17%), and 27 who reported being of other or mixed races (2.56%).

**Instruments**

The instruments that were used for this study included the Adult Rehabilitation and Employment Survey (ARES), which consisted of 79 variables, covering (a) general demographics including living situation; (b) VR and adjustment training experiences; (c) civic and consumer organization affiliation; (d) educational attainment; (e) employment characteristics; and (f) a request to participate in future research.

**Procedures**

All participants first read (or were read to) an informed consent document that outlined the purpose of the study, characteristics of requested participants (i.e., blind/VI adults of working age), and a notice that their participation was completely voluntary. This study was reviewed and approved by the host university’s Institutional Review Board (IRB). Interested persons were provided two options for participation: (1) they could complete the survey online by visiting the provided URL; or (2) they were invited to contact the office of the principal investigator and have the survey read to them by a research assistant over the phone. The survey took approximately ten minutes to complete. Data were collected between March 15 and August 31, 2011.

**Recruitment.** The purpose of this survey was to obtain a snapshot of the cross section of rehabilitation, education, and employment situation of adults with legal blindness/visual impairment in the United States. As such, a host of methods were employed to reach individuals from a cross section of society and socioeconomic status. The invitation to participate in the survey was distributed on all available listservs of the two largest consumer organizations of the blind (i.e., the American Council of the Blind (ACB) and the National Federation of the Blind (NFB)). The invitation was sent electronically to every state-operated library for the blind in each regional office with a request to have it distributed to library patrons. The invitation was sent electronically to all fifty VR agencies who serve the blind/VI population, to the National Council of State Agencies for the Blind, and related rehabilitation membership organizations. The request for participation was sent to more than 80 rehabilitation and adjustment training facilities electronically, and more than 2,000 requests were also sent in print/Braille to those training centers that were willing to distribute the announcement. In addition, 3,000 print/Braille flyers were distributed to the participants of the 2011 annual convention of the NFB; 1,200 were distributed to the participants of the 2011 annual convention of the ACB; and 200 were distributed to the participants of the Blinded Veterans of America Conference. Requests were sent on more than ten periodic newsletters and periodical publications, were posted on Facebook and other social media outlets, and were passed on by word of mouth.

**Results**

**Demographics**

Beyond age, gender, and racial group identity, the following data were captured to provide an understanding of the make up of the sample population that comprised this study. The respondents were representative of all 50 states, with the fewest respondents being from North Dakota (n = 2) and the largest representation coming from Texas (n = 75). They self-reported being 702 individuals who are blind (66.48%) and 354 reported being visually impaired (33.52%) (See Table 1).

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According to the literature, there are several factors that predict employment for the blind and VI. Among them, educational level, age, training in blindness skills, and visual status remain consistent across the research studies. Leonard, D'Allura, and Horowitz (1999) found that both achieving a higher educational level and attending an integrated school setting for most of one’s schooling was associated with being employed. In addition, the use of printed material as a primary reading medium, employment related skills (computer, typing, and use of public transportation), psychosocial variables (overall satisfaction with social contact and receipt of encouragement from family and friends), vision rehabilitation service, and technology training were associated with being employed. In relation to those factors that predicted employment in higher level positions, they identified higher level of education, technology training, orientation and mobility (O&M) training, and fewer hours of rehabilitation teaching.

In addition to the receipt of education services that resulted in a certificate or degree, Capella-McDonnall (2005) concluded that having worked since the onset of the disability, the reason for applying to rehabilitation for services, and a high-quality relationship between the client and rehabilitation counselor were the greatest predictors of an employment outcome. In contrast, McDonnall and Crudden (2009) concluded that an involvement with the VR counselor was not associated with employment. In this later study, the results showed that work experience, academic competence, self-determination, use of assistive technology, and locus of control were all significant predictors of employment in transition-age youth with blindness. Cavenaugh, Giesen, and Steinman (2006) also found that the education level reached and the age at the time of application, followed by the presence of a secondary disability, and race/ethnicity were strong predictors of employment.

Regarding visual status, Leonard et al (1999) found that this factor had an important impact on employment outcomes, since those individuals who were blind were more likely to be employed in higher level positions than those who were partially sighted. A study by Darensbourg (2013) also revealed that the severity of vision loss was a statistically significant predictor of competitive employment outcomes, however, in this study those consumers with lesser vision loss where more likely to be competitively employed. On the other hand, the study of Cavenaugh et al (2006) showed that the severity of the disability was the strongest predictor of acceptance for VR services.

The results of the study conducted by Warren-Peace (2009) revealed that the likelihood of obtaining competitive employment after receiving services from VR was greater for those consumers who were legally blind without a secondary disability; were male; African American, Hispanic, or Multiple race/ethnicity; had a personal income as a primary source of support at application; and attained a special education certificate or college degree. As well as visual status, Darensbourg (2013) found that the variables that were the most statistically significant predictors of competitive employment outcomes for individuals with blindness or visually impairment were weekly earnings at application, source of referral (self-referral), gender (male), and not receiving Medicaid.

Besides predicting competitive employment, some of the factors mentioned so far also predicted higher earnings. For consumers with visual impairments who were competitively employed through the state-federal VR system during Fiscal Year 1997, Capella (2001) concluded that age, educational level, and case expenditures were some of the factors accounting for differences in earnings. Of these three, age was the most significant predictor; clients with visual impairments that were older tended to receive lower earnings. Education also had impact on earnings, since the higher the level of education, the higher the earnings. Finally, some of the variance in earnings was explained by case expenditures, whereby the greater amount of money that was spent on a case, the higher the earnings at closure was for consumers.

An additional factor that seemed to have a significant impact on employment outcomes and earnings for individuals who were blind and VI was the type of agency (separated or combined/general) that served these clients. Cavenaugh, Giesen, and Pierce (2000) concluded that the mean earnings at closure of legally blind consumers were significantly higher in separate agencies than in combined agencies. In addition, Warren-Peace (2009) found that the type of agency seemed to be a relevant predictor of competitive employment outcomes. Those consumers who received services from a separate agency for the blind had more chances to be closed in an integrated work setting. Capella (2001), however, found that the type of agency that served these clients was not a significant factor impacting on earnings.

From a different perspective, Golub (2006) studied the factors that contributed to successful work experiences for employees from the perspective of their employers. This study revealed that, according to the employers, important factors included employee being comfortable with his/her disability, being an ambassador for blindness by eliminating awkwardness in relationships, and insisting on being held to the same standard as his/her coworkers. In addition, this study found that the key to success for employees was skills of blindness. He/she should possess updated O&M, Braille and assistive technology skills, and a variety of strategies to cope in case a system fails. Furthermore, during interviews candidates should demonstrate their competence and have specific ideas for how to manage the details of the work and transportation challenges.

The literature also accounts for studies that have analyzed those factors that are considered barriers for employment. Crudden and McBroom (1999) for example, found that attitudes of employers and the general public, transportation problems, and a lack of access to print, adaptive equipment, and accommodations were the most relevant. Visual status also seemed to play a role when analyzing barriers to employment since individuals who were partially sighted had more issues with transportation than those who were totally blind. Those who were blind as opposed to VI, however, had more problems with the skills or attitudes of rehabilitation counselors or placement staff. When asked about the most important thing the rehabilitation counselor did to help the participants to find employment, they mentioned help in locating jobs, arranging interviews, and providing job references; provision of education and training or equipment; and provision of counseling and emotional support. However, of the total sample, only 39% of the participants believed that VR services helped them to obtain their jobs. The rest of them believed that rehabilitation services helped them to improve their performances, that the services made them more competitive with those nondisabled workers, and that the services helped them to maintain their jobs.

Finally, Bell (2010) offers one of the most current analyses on the competitive employment rates for VR consumers who were legally blind. Results from fiscal year 1997 to 2007 (obtained by using the RSA-911 data system) showed an average employ­ment rate of 31.79%, which was significantly higher than the 25.1% reported by Cavenaugh (1999) based on data from FY 1995. In fact, the Competitive Consumer Rates have shown a steady climb from 27% in 1997 up to a high of 37% in 2007. In addition, earnings of consumers had also increased. Some of the factors that seemed to impact employment outcomes were gender, race, education, and veteran status. Results demonstrated that men earned $0.63 more an hour than women in 1997, and this increased by 2007 to a $0.86 difference on average. In addition, while the average spread between earnings was about $6.00 in 1997, the variability in earnings had increased to nearly $12 for men but only $8 for women. On the other hand, Native Americans had less employment in 1997 than the other racial groups, and this group remained substantially behind by 2007. Asian/Pacific Islanders earned the highest average wages and Black/African Americans earned the lowest average hourly rates. Those with a master’s degree or higher had almost a 40% greater chance of being employed and had $4.00 an hour more in earnings than did individuals with less than a high school degree. In addition, American veterans were underrepresented in the RSA-911 data system, and where they were identified the rates of employment were 19%.

**White cane for mobility.** When analyzing the impact of using a cane and having received O&M training on employment outcomes, this factor appears to be important when obtaining a job in higher level positions (Leonard et al 1999). In addition, from the perspective of employers, having O&M skills was a factor that contributed to successful work experiences for employees (Golub, 2006). In his literature review, Miller (2002) addresses the important role that both O&M instructors and rehabilitation teachers have as employment resources. They not only provide the training that leads to employment but since they spend more time with the consumers than the counselor in a community-based setting, they have the chance to explore a consumer’s vocational interests and complement the rehabilitation counselor’s job.

As it is well known in the field of O&M, there are two main philosophical approaches that outline two different training methods: the conventional approach and the alternative approach or Structured Discovery Cane Travel (SDCT) (Omvig, 2005). SDCT instructional service offers to individuals who are blind or VI the opportunity to learn independence and build self-confidence in a meaningful and permanent approach. SDCT is rooted on non-visual techniques, problem- solving skills, and confidence-building learning experiences (National Blindness Professional Certification Board, 2012). It is based on experiential learning and it remains neutral regarding the instructor’s perceptual experience, transferring the focus on the instructor’s vision to the cognitive processes that are involved in an orientation and mobility lesson. The success of cane travel depends upon the way in which the student is able to cognitively process the information (Mettler, 2008). SDCT also applies principles of the Socratic questioning, (i.e., the asking of strategic questions to guide the learner in solving the problem autonomously), and strongly relies on the role modeling of non-visual techniques, which encourages the discrediting of public misconceptions about blindness (National Blindness Professional Certification Board, 2012).

The literature is not extensive about the effectiveness of the different types of O&M training that those individuals who are blind or VI receive and their impact on employment outcomes. However, in his study, Aditya (2004) made an attempt to evaluate the effectiveness of the SDCT approach. The author hypothesized that because of the philosophical and methodological differences between the conventional and alternative approaches related to functional independence, individuals trained in the alternative approach will score higher on a measure of functional independence than those trained in the conventional approach. In this survey the data about the method of training was not directly obtained, however, it was replaced by examining the variable of cane size, given that the “NFB” canes are employed almost exclusively in the alternative approach, while the shorter, folding, aluminum or graphite canes are predominately utilized in conventional programs. Therefore, the item of cane size was recoded into a dichotomous variable to reflect the two training approaches. The descriptive statistics revealed that the differences were in the expected direction. The within-group variances between those who were trained in the alternative approach and those who were trained in the conventional approach were noticeably different. Aditya (2004) reported that individuals who were trained with a long, white cane had significantly higher ability and activity in matters of independent living.

**Braille.** One of the most cited studies in the field conducted by Ryles (1996) revealed that reading Braille was one main skill that predicted, for congenitally legally blind adults, higher employment rates and higher education levels than reading print as original medium. The main results showed that those individuals that utilized Braille as their primary reading medium had a significantly lower unemployment rate (44%) that those who utilize print as the original reading medium. The author affirmed that even though reading Braille as a primary medium did not increase an individual’s opportunities for employment, those who learned Braille when they were children and used Braille extensively as their primary reading medium, were employed at a higher rate. However, those who learned Braille after using print did not have a higher employment rate than those who never read Braille. According to Golub (2006), employers believed that possessing updated Braille skills represented an important factor that contributed to successful work experiences for their employees.

Papadopoulos and Koutsoklenis (2009) conducted a study with higher education Greek students and graduates who were VI in order to explore the use of different reading media. They found out that the most significant predictors of the frequency of use of Braille were visual status, age at the loss of sight, and training in Braille. Specifically, the frequency of use of Braille declined with the increase in the age at which sight was lost, but increased with training in Braille. The authors concluded that a well-established tendency to use technology could lead to a further decline in the frequency of Braille use in Greece. For this reason they stated that efforts should be made to enhance the use of Braille, and since in Greece the frequency of Braille use decreases with the increase in age at time of loss, they recommended the development of intensive Braille courses for people who become visually impaired at a later age.

Little agreement exists over the type, nature, intensity, structure, and model of training that is most effective (Ryles, 2008). Some training models report that the learning of Braille is a requirement for all individuals who enter the program (Mayo, Allen, & Deden, 2008) while others report that only 20% of individuals attending training elect to learn Braille (Ponchillia & Durant, 1996). It is commonly reported that 85% of adults who read Braille are employed (Ryles, 1996; Spungin, 1990), yet disagreement still rages over what constitutes best practice for the teaching of Braille.

**Consumer and civic involvement.** Existing literature has demonstrated the key role that family support plays in sustaining effective outcomes (Bennetts, 2003; Whelley, Radtke, R., Burgstahler, S., & Christ, T., 2003). The role of advisors, peers, and other peer-to-peer interactions has also been cited as important in the rehabilitation process (Hall & McGregor, 2000; Whelley, et al., 2003). Both formal as well as informal models of mentoring have been demonstrated as effective mediators in education, employment, and career decision making (Bell, 2012; Hall & McGregor, 2000; Marks & Feeley, 1995). Community and civic participation, such as religious affiliation, social clubs, and civic organizations, further help to support interest and engagement in employment (Nagle, 2001; Vaughn & Omvig, 2005). Finally, specifically for members of the target population, self-reports and anecdotal evidence suggest that membership in a consumer organization is an essential element in the rehabilitation process (Beck-Winchatz & Riccobono, 2008; Omvig, 2005; Phelps, 2005). However, the stories of many individuals who are blind tell of families who were over protective (Omvig, 2002), of communities that put up restrictions (Ferguson, 2001), and of support groups that promoted unemployment and dependence (Vaughn & Omvig, 2005). What research needs to accomplish is to tease out how these factors serve as facilitators rather than deterrents so that training and education can impact greater growth and evolution.

Crudden and McBroom (1999) conducted a study that demonstrated that among the reasons participants thought they were successful in overcoming barriers to employment was the importance of developing networking and mentoring opportunities. Role models appeared to be a relevant variable in maintaining motivation. They serve as examples to others and provide helpful insight on how to address some of the employment barriers. According to participants in this study, rehabilitation providers usually do not encourage mentoring opportunities or contact with role models who are visually impaired. The authors stated that referrals to consumer organizations could assist those who seek employment in generating support systems.

Even though there is a lack of empirical studies about the impact of a consumer affiliation on employment outcomes, there are sufficient testimonies of blind individuals who express the opinion that their involvement in a consumer organization changed their lives completely. Omvig (2002) stated the NFB has been a key in his life and the lives of many blind individuals. He emphasizes the importance that competent and successful blind people who are part of this organization have as positive role models. These role models are the living proof that with proper training and opportunity, blind people can live normal, successful, and meaningful lives. And this is what they pass along to the new generations.

**Purpose of the study.** The purpose of the current study was to capture a snapshot of the employment status of individuals who are legally blind and/or VI across the United States. Furthermore, this study sought to examine demographic factors, education, civic involvement, and rehabilitation experiences of this population in order to determine whether any state factors (i.e., those which are changeable through education or training) could be identified as contributing to the employment outcomes of these individuals.

**Research Questions.** The following research questions served as the guiding principles for this study.

Q1: What is the employment rate for adults who are blind/VI in a national sample, and how does this rate compare to existing research findings on the subject?   
Q2: Are specific demographic factors (i.e., age, gender, racial identity, visual status) associated with greater or lesser rates of employment and wages for this population?   
Q3: Can social and civic factors (i.e., civic involvement, affiliation with consumer organizations) be identified that are associated with higher rates of employment and wages for this population?  
Q4: Can education and rehabilitation-related factors (i.e., college, adjustment training, etc.) be identified that are associated with increased rates of employment and wages for this population?

**Method**

**Participants**

The participants for this survey were drawn from legally blind and VI adults of working age (i.e., 18-70 years old) from across the United States. Complete data were obtained from 1,056 individuals who were an average age of 46.47 years (SD=13.81, Range=18-87). These individuals were representative of 595 females (56.34%) and 461 males (43.66%), who were 90 African Americans (8.52%), 35 Asian Americans (3.31%), 56 Hispanics/Latinos (including Puerto Ricans) (5.30%), eight Native Americans/Alaska Natives (0.76%), four Native Hawaiians/Pacific Islanders (0.38%), 836 Whites or Caucasians (79.17%), and 27 who reported being of other or mixed races (2.56%).

**Instruments**

The instruments that were used for this study included the Adult Rehabilitation and Employment Survey (ARES), which consisted of 79 variables, covering (a) general demographics including living situation; (b) VR and adjustment training experiences; (c) civic and consumer organization affiliation; (d) educational attainment; (e) employment characteristics; and (f) a request to participate in future research.

**Procedures**

All participants first read (or were read to) an informed consent document that outlined the purpose of the study, characteristics of requested participants (i.e., blind/VI adults of working age), and a notice that their participation was completely voluntary. This study was reviewed and approved by the host university’s Institutional Review Board (IRB). Interested persons were provided two options for participation: (1) they could complete the survey online by visiting the provided URL; or (2) they were invited to contact the office of the principal investigator and have the survey read to them by a research assistant over the phone. The survey took approximately ten minutes to complete. Data were collected between March 15 and August 31, 2011.

**Recruitment.** The purpose of this survey was to obtain a snapshot of the cross section of rehabilitation, education, and employment situation of adults with legal blindness/visual impairment in the United States. As such, a host of methods were employed to reach individuals from a cross section of society and socioeconomic status. The invitation to participate in the survey was distributed on all available listservs of the two largest consumer organizations of the blind (i.e., the American Council of the Blind (ACB) and the National Federation of the Blind (NFB)). The invitation was sent electronically to every state-operated library for the blind in each regional office with a request to have it distributed to library patrons. The invitation was sent electronically to all fifty VR agencies who serve the blind/VI population, to the National Council of State Agencies for the Blind, and related rehabilitation membership organizations. The request for participation was sent to more than 80 rehabilitation and adjustment training facilities electronically, and more than 2,000 requests were also sent in print/Braille to those training centers that were willing to distribute the announcement. In addition, 3,000 print/Braille flyers were distributed to the participants of the 2011 annual convention of the NFB; 1,200 were distributed to the participants of the 2011 annual convention of the ACB; and 200 were distributed to the participants of the Blinded Veterans of America Conference. Requests were sent on more than ten periodic newsletters and periodical publications, were posted on Facebook and other social media outlets, and were passed on by word of mouth.

**Results**

**Demographics**

Beyond age, gender, and racial group identity, the following data were captured to provide an understanding of the make up of the sample population that comprised this study. The respondents were representative of all 50 states, with the fewest respondents being from North Dakota (n = 2) and the largest representation coming from Texas (n = 75). They self-reported being 702 individuals who are blind (66.48%) and 354 reported being visually impaired (33.52%) (See Table 1).

**Table 1 – Demographics**

|  |  |  |
| --- | --- | --- |
| **Age** |  |  |
| n | **Mean** | **SD** |
| 1056 | 46.47 | 13.81 |
|  | Range | 18-87 |
|  |  |  |
| **Gender** | **Frequency** | **Percent** |
| Female | 595 | 56.34 |
| Male | 461 | 43.66 |
| Total | 1056 | 100 |
|  |  |  |
| **Race/Ethnicity** | **Frequency** | **Percent** |
| African American, Black | 90 | 8.52 |
| Asian American, Asian | 35 | 3.31 |
| Hispanic, Latino (including Puerto Rican) | 56 | 5.3 |
| Native American, Alaska Native | 8 | 0.76 |
| Native Hawaiian, Pacific Islander | 4 | 0.38 |
| Other | 27 | 2.56 |
| White or Caucasian | 836 | 79.17 |
| Total | 1056 | 100 |
|  |  |  |
| **Vision Status** | **Frequency** | **Percent** |
| Blind | 702 | 66.48 |
| Visually Impaired | 354 | 33.52 |
| Total | 1056 | 100 |

Data were collected on additional demographics, such as marital status, living situation, and the community of residence. The majority of participants (51%) reported that they live in their own home that they are purchasing, with the smallest proportion (2%) who reported living in a dormitory or similar institution. The largest segment of this population are currently married (45%), while just under two percent report being widowed. By far, the majority of this sample (57%) report that they do not have any children, while the next largest grouping (17%) report having two children. While others report having one, three, four or five children, less than two percent (1.5%) report having six or more children. When looking at the size of the community in which individuals reside, the majority (23%) lived in small communities of less than 25,000 residence, with the second largest concentration (22%) living in small communities of between 25,000 and 75,000. The third largest grouping of individuals resided in large cities with populations above one million, and the remainder fell into mid-size communities (See Table 2).

**Table 2 – Family and Community**

|  |  |  |
| --- | --- | --- |
| **Living Situation** | **Frequency** | **percent** |
| Live alone and/or with others in house/condo that I own or am purchasing | 541 | 51.23 |
| Live alone and/or with others in apartment or rental property that I pay for | 300 | 28.41 |
| Live at home with parents or in someone else’s home | 130 | 12.31 |
| Live in dormitory or other institution | 25 | 2.37 |
| Share an apartment or rental property with room mates | 60 | 5.68 |
| Total | 1056 | 100 |
|  |  |  |
| **Marital Status** | **Frequency** | **Percent** |
| Divorced | 107 | 10.13 |
| Married | 475 | 44.98 |
| Separated | 22 | 2.08 |
| Single | 353 | 33.43 |
| Widow or widower | 18 | 1.7 |
| With significant other person | 81 | 7.67 |
| Total | 1056 | 99.99 |
|  |  |  |
| **Raising Children** | **Frequency** | **Percent** |
| No, I have no children | 605 | 57.29 |
| 1 child | 133 | 12.59 |
| 2 children | 176 | 16.67 |
| 3 children | 80 | 7.58 |
| 4 children | 35 | 3.31 |
| 5 children | 11 | 1.04 |
| 6 or more children | 16 | 1.52 |
| Total | 1056 | 100 |
|  |  |  |
| **Population of Your Community** | **Frequency** | **Percent** |
| 1-25,000 People | 245 | 23.2 |
| 25,001—75,000 People | 240 | 22.73 |
| 75,001—150,000 People | 121 | 11.46 |
| 150,001—250,000 People | 104 | 9.85 |
| 250,001—500,000 People | 89 | 8.43 |
| 500,001—1,000,000 People | 121 | 11.46 |
| 1,000,001—2,000,001—larger | 136 | 12.88 |
| Total | 1056 | 100.01 |

**Vocational Rehabilitation and Education**

The next set of questions was designed to gain information related to VR, and in particular, the attainment of adjustment to vision loss training. Individuals were asked whether they had an active case with their state’s VR agency. Forty-two individuals (3.98%) stated that they have never had a VR case, while 26 were unsure or did not know (2.46%). Of the remaining 94%, 577 individuals (54.64%) reported having once had a VR case, but that it is closed now, while 411 individuals (38.92%) reported they still maintain an open VR case. When asked whether or not the individual ever received adjustment to blindness training (i.e., mobility with a white cane, Braille, or daily living skills), 191 individuals (18.09%) reported that they have never received any sort of formal skill training based on visual impairment. Another 501 individuals (47.44%) reported having completed (or graduated) from either a residential or day-training program. Another 119 individuals (11.26%) stated that they attended a residential or day program, but that they did not complete their training program. Finally, 252 individuals (23.86%) reported that they attended multiple forms of training, and/or that they received training in their home or school.

While there are many forms of rehabilitation and adjustment training, this study focused only on cane and Braille. For those who did receive some sort of adjustment training, they were asked about their training/use of a white cane for mobility. There were 777 individuals who reported having been taught to use a cane. These individuals were at an average of 23.67 years of age (SD = 15.62, Range = 2—78) when they were first taught. Of the total sample, 152 stated “No, the use of a cane was not taught” (14.39%). The remaining individuals stated, “I learned a little about cane use” (n = 76, 7.20%); “I was taught using a white cane that measured between my sternum and chin” (n = 513, 48.58%); and “I was taught with a long cane that measured between my chin and nose” (n = 315, 29.83%). When respondents were asked whether they currently use a white cane for mobility, 247 stated that they did not use a cane for mobility (23.39%). Of the remaining 544 individuals, (51.52%) stated that they use a cane all of the time, and 265 individuals (25.09%) reported using a cane some of the time. When asked about the size and structure of the cane that is preferred for current use, 334 individuals (39.57%) said, “A folding cane, that is lower than my chin in height;” 171 individuals (20.26%) said, “A folding or telescoping cane that is above my chin in height;” 249 individuals (29.50%) said, “A rigid cane that is above my chin in height;” 40 individuals (4.74%) said, “A rigid cane, that is lower than my chin in height;” and 50 individuals (5.92%) stated that they used another type of cane/mobility device.

Similarly, participants were asked about their training/use of Braille. There were 674 individuals who reported being taught Braille at an average of 18.32 years of age (SD = 15.54, Range = 3—78). Of the entire sample, 765 stated that they were taught Braille (72.44%), while 291 reported that they had not been taught Braille (27.56%). When these participants were asked whether or not they currently read Braille on a daily or weekly basis, 613 stated that they currently read Braille (58.05%), and 443 stated that they do not currently read Braille (41.95%).

With respect to participant education, respondents were asked about their educational standing before they received any rehabilitation training, and then again after the receipt of any vocational training. Table 3 provides a side by side comparison of the number and percentage of individuals by educational level before and after rehabilitation training. As can be seen from the table, a majority of individuals significantly increased their educational attainment, from pre to post training. When respondents were asked whether they attributed their rehabilitation training to their advances in education, 141 individuals (13.45%) stated that they did not attend rehabilitation and adjustment training. Of the remaining, 201 individuals (19.03%) stated that their rehabilitation did not help them to increase their educational attainment, while another 282 individuals (26.70%) were not sure. This meant that 432 individuals (40.1%) of respondents felt that their rehabilitation training was either somewhat helpful, or was instrumental in their ability to increase in their educational attainment.

**Table 3 – Education**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Education**  **Before VR** | **Frequency** | **Percent** | **Education** **After VR** | **Frequency** | **Percent** |
| Less than High School | 194 | 18.37 | Less than High School | 13 | 1.23 |
| High School diploma/GED | 349 | 33.05 | High School diploma/GED | 49 | 4.64 |
| Some college, but no degree | 148 | 14.02 | Some college, but no degree | 141 | 13.35 |
| Associates Degree/AA | 50 | 4.73 | Associates Degree/AA | 76 | 7.2 |
| Vocational or Trade school | 15 | 1.42 | Vocational or Trade school | 53 | 5.02 |
| Bachelor’s/undergraduate degree | 147 | 13.92 | Bachelor’s/undergraduate degree | 246 | 23.3 |
| Master’s/Graduate Degree | 72 | 6.82 | Master’s/Graduate Degree | 238 | 22.54 |
| Law Degree | 12 | 1.14 | Law Degree | 21 | 1.99 |
| Doctorate degree/post graduate training | 17 | 1.61 | Doctorate degree/post graduate training | 46 | 4.36 |
| Not sure or  Not applicable | 52 | 4.92 | Not sure or  Not applicable | 173 | 16.38 |
| Pre Training | 1056 | 100 | Post Training | 1056 | 100.01 |

**Consumer and Civic Involvement**

Individuals were asked whether they participated in any consumer organizations of the blind. There were 226 individuals (21.40%) who affiliated with the (ACB); 49 individuals (4.64%) who affiliated with both the ACB and NFB; 457 individuals (43.28%) who associated with the NFB; and 324 individuals (30.68%) who are not members of any consumer organization. In attempting to determine the level or extent of consumer organizational affiliation, 330 individuals (31.25%) reiterated that they do not participate in consumer organizations; 397 individuals (37.59%) stated that they are members, but hold no leadership positions; 253 individuals (23.96%) reported holding local or state leadership positions; 12 individuals (1.14%) claimed national leadership positions; and 64 individuals (6.06%) stated that they hold several positions at the local, state, and/or national level.

Information was also sought with respect to the frequency with which participants participated in other community and/or civic activities in their local communities. All individuals participated in at least one extracurricular event, and a large number participated in a number of different activities. Of the sample, 541 individuals (51.23%) stated that they participate in their local church, synagogue, or place of worship. As many as 185 individuals (17.51%) reported holding leadership positions within their church. One-hundred ninety-four individuals (18.37%) participate in music or theatre; 111 individuals (10.51%) compete on local sports or athletic teams; 114 individuals (10.79%) are members of Kiwanis, Rotary, or other business groups; and 200 individuals (18.93%) participate in political and/or other civic groups.

### Employment

One of the major factors under consideration in this study was the employment situation of the population of adults who are blind/VI, and specifically, what role, if any, VR plays in changing this situation. As can be seen from Table 4, 512 individuals (48.48%) were unemployed prior to receiving VR services, while only 192 individuals (18.18%) were employed full time. Conversely, after individuals received VR services, the majority of persons, 393 (37.22%), were employed full-time, compared to 307 individuals (29.07%) who remained unemployed, in addition to a 5.3% increase in the number of individuals who were working part-time. Of the 535 individuals who were working either full- or part-time at the completion of this survey, 406 individuals provided data on their annual salaries. For these individuals, the average annual salary was $40,134.12 (SD = $27,129.74, Range = $2,401.92--$180,000), with a median annual salary of $35,000.

**Table 4 – Employment Status**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Before VR** | **Frequency** | **Percentage** | **After VR** | **Frequency** | **Percentage** |
| Full-time employed | 192 | 18.18 | Full-Time | 393 | 37.22 |
| Part-time employed | 86 | 8.14 | Part-Time | 142 | 13.45 |
| Full-time college or vocational student | 119 | 11.27 | Full-Time College | 72 | 6.82 |
| Volunteer part- or full-time | 33 | 3.13 | Vol. F-P | 45 | 4.26 |
| Full-time Homemaker | 26 | 2.46 | Homemaker | 21 | 1.99 |
| Retired from previous employment | 35 | 3.31 | Retired | 76 | 7.2 |
| Unemployed | 512 | 48.48 | Unemployed | 307 | 29.07 |
| N/A, I never had a VR case before | 53 | 5.02 |  |  |  |
| Total | 1056 | 99.99 | \* | 1056 | 100.01 |

Information was also collected with respect to the availability of fringe benefits through the place of employment. The participants reported that 361 individuals (66.85%) had the availability of medical insurance through their place of work. In addition, 338 individuals (62.59%) reported having dental insurance available to them, and 332 individuals (61.48%) reported having retirement benefits/planning available to them through their work.

### Factors that Impact on Employment

The preceding data are helpful in drawing a picture of the general demographic, rehabilitation, educational, and employment characteristics of the working-age population of individuals who are blind. With only 37% of the population reporting full-time employment, it is important to examine the demographic, rehabilitation, and educational characteristics of this sample to determine the factors that seem to make an impact on the attainment of employment. The demographic and descriptive data that have been presented so far are representative of the entire sample. During the analysis of the VR data, the first question identified that 475 individuals (45.36%) of the sample either still have an open VR case, or else they did not know what their VR status was. Consequently, 577 individuals (54.64%) of the sample reported that they did receive VR services, but that their VR case has now been closed. It is this portion of the sample whose data should be most descriptive of the employment situation of individuals post-rehabilitation, and therefore, the remaining analysis will be confined to the 577 individuals who have already received VR services and who should most likely be available for participation in the workforce.

**Demographic factors.** The participant’s age, gender, racial/ethnic classification, and visual impairment characteristics were examined to determine to what effect each has on the attainment of employment. The data demonstrated that there was no correlation between the age of the consumer and the likelihood of being competitively employed; nor was there a relationship between age and the annual earnings of participants.

Participants were asked to classify themselves as being either blind or VI. This information was sought based on a perception that those with lesser vision may be less employable and consequently at a greater risk for unemployment. The data demonstrated no significant difference based on this classification (F(1, 576) = 1.55, p = .21, RS.0). Those who described themselves as “blind” were employed at a rate of 54%, while those who classified themselves as “visually impaired” were employed at a rate of 49%. While a difference does exist based on annual earnings for these two groups, the results were non-significant (F(1, 294) = 3.28, p = .07, RS = .01).; with blind individuals earning $44,000 on average and visually impaired earning $37,623. With respect to gender, the data demonstrated no significant differences between men and women on the percentage of those who were employed (54% and 51% respectively); however, there was a significant difference in the annual earnings based on gender (F(1, 294) = 10.45, p < .01, RS = .03), with men earning an average of $47,424 and females earning $37,483 annually. Next, the participant’s self-reported racial/ethnic background was examined, and no significant differences were found in either the percentage of employment or annual earnings.

Does participation in a national consumer organization of the blind/VI help such individuals with their employment prospects? Data demonstrated that a significant difference did exist (F(2, 576) = 5.99, p < .01, RS = .02), with those individuals who participate in the ACB being employed at a rate of 42%, those who participate in the NFB being employed at a rate of 59%, and those who reported no participation in a consumer organization for the blind being employed at a rate of 49%. Similarly, a significant difference exists based on annual income (F(2, 294) = 3.80, p = .02, RS = .02), with ACB members earning an average annual wage of $37,100; NFB members earning $46,200; and those who do not affiliate with either organization earning $38,200.

**Training factors.** Beyond those characteristics of participants that are trait factors (i.e., demographics), it was next important to evaluate the impact of the state factors that were examined (i.e., education and rehabilitation training). Previous studies (Bell, 2010) demonstrated that the attainment of college education is a leading factor in increasing employment and so it was examined for its impact in this study. Although myriad forms of rehabilitation training exist, this study focused primarily on the provision of adjustment skills training through comprehensive residential and day training programs. Specific data were also obtained with respect to the use of the white cane and Braille, as these are the most readily identifiable tools used by individuals who are blind or VI.

The data demonstrate that a significant difference exists between the employment status of participants based on the level of education that had been attained (F(4, 576 = 13.09, p < .01, RS = .08). Further analysis showed that those who had a high school diploma or less, or who attended only some college were employed at a rate of 36%; those who had earned a baccalaureate degree were employed at a rate of 59%; those having earned a master’s degree were employed at a rate of 65%; and those with a law or doctoral degree were employed at a rate of 80%. Similarly, significant differences exist with respect to the annual earnings of these individuals (F(4, 296) = 12.23, p < .01, RS = .14). These differences were represented by those holding a high school diploma or less earning an average annual salary of $31,500; those holding a baccalaureate degree earning $42,300; those holding a master’s degree earning $48,200; and those with a law or doctoral degree earning $66,900 annually.

When participants were asked whether they had completed training at any sort of day-time or residential program, the sample was split almost in half between those who had, and who had not completed training. The data demonstrated that the mere fact of receiving training versus not receiving training had no impact on employment outcomes (F(1, 576) = 0.24, p =.62, RS = 0). Upon further analysis, a more interesting trend was discovered. The data demonstrated a significant difference based on the method or type of training that was received (F(2, 576) = 3.78, p = .02, RS = .01). The data demonstrated that those individuals who completed training at a Structured Discovery-based training center were employed at a rate of 60%; those who completed training at a traditional or conventional training facility were employed at a rate of 47%; and those who either received training at home, or who received no formal skills training were employed at a rate of 56%. When the annualized salary of these individuals was examined, the data again showed significant differences (F(2, 294) = 3.98, p = .01, RS = .02). The same trend continued, with those who received their rehabilitation at a Structured Discovery-based program earning an average of $49,302; those who received their training at conventional centers earned an average of $38,170; and those who were trained at home or had no formal training earned an average of $42,753.

Another factor that was examined in this study was recidivism (i.e., the returning for training multiple times). As has been noted in the literature, there is concern that the need for constant retraining—for example, when more vision diminishes--has a negative impact on employment. It is for this reason that Structured Discovery-based training centers endeavor to provide comprehensive training during one concentrated period of time. The data do in fact support the notion that those who return for training multiple times have significantly less employment than those who only obtain training a single time (F(3, 384) = 2.80, p = .04, RS = .02), with those who obtained training one time being employed at a rate of 57% and those receiving training 4 or more times being employed at a rate of 35%. The same trend exists with respect to salary (F(3, 193) = 2.81, p = .04, RS = .04), with those who attended training one time earning $46,766, and those obtaining training four or more times earning $33,275.

More specifically, this research was interested in several specific training variables and their impact on employment. The data demonstrated that 87% of participants have been taught to use a long white cane for mobility; however, only 54% of respondents report currently using a white cane for daily mobility. When these data were evaluated for their impact on employment, the data demonstrated that individuals who currently use a white cane for mobility are employed at a significantly higher rate than those who do not (F(1, 576) = 3.73, p = .05, RS = .006), with cane users being employed at a rate of 57% and those who do not use a cane being employed at a rate of 49%. The data were similarly significant with respect to the annual income of cane users (F(1, 294) = 4.77, p = .02, RS = .01), with cane users earning an average of $45,329, and non-cane users earning an average of $38,478. Stemming from the findings of Aditya (2004), the data were next analyzed to see if the type of cane used was related to employment outcomes. The data demonstrated a significant difference (F(2, 465) = 9.52, p < .01, RS = .03), with those who use a rigid cane that comes above the chin in height being employed at a rate of 66%, those who use a folding or rigid cane that is below the chin in height being employed at a rate of 47%, and those who either use an “other” device or no cane at all being employed at a rate of 34%. Similarly, the data demonstrated a significant difference in the annual earnings (F(2, 241) = 6.92, p < .01, RS = .05), with longer white cane users earning approximately $50,000, short/folding cane users earning $37,000, and other/no cane earning $49,000.

The same data were next analyzed to determine whether the use of Braille had an impact on the employment status of this population. Similar to cane use, 75% of the participants were taught Braille at some time during their education or rehabilitation, but only 63% reported still using Braille on a daily basis. Are Braille readers employed at a higher rate than VI individuals who do not read Braille? The data demonstrate that the answer to this question is yes (F(1, 576) = 11.32, p < .01, RS = .02), with Braille readers being employed at a rate of 58% and those who do not read Braille being employed at a rate of 44%. With respect to annualized salary, the data are even more significant (F(1, 294) = 11.40, p < .01, RS = .03), with Braille readers earning an average of $45,947, and non-Braille readers earning an average of $34,826. With more than an $11,000 difference in annualized salary, there appears to be a substantial impact that Braille has on employment and salary.

Taken individually, each of these factors demonstrates a significant impact (or association) with greater or lesser rates of employment. By combining the most salient factors together, the results show even more substantial differences in employment outcomes. Individuals who complete training at a Structured Discovery type of training center, continue to read Braille on a daily or weekly basis, use a white cane for mobility, and affiliate with the NFB are employed at a rate of 75%, earning an annualized salary of $53,600. Conversely, those individuals who received training at a conventional program or had no formal training, who affiliated with the ACB or no consumer organization, and who do not use a white cane or Braille are employed at a rate of 44%, earning $36,000 annually.

### Discussion

The rates of employment for individuals who are legally blind/VI in the United States have been low for decades. The purpose of this study was to describe the current employment status of these individuals and to analyze its consistency with federal reports and previous research. In addition, the study sought to examine demographic factors, education, civic involvement, and rehabilitation experiences of this population in order to determine whether some of them could be identified as contributing to the employment outcomes.

The contributions of this study are quite revealing and reliable since this work represents the largest field-based study in the field of rehabilitation for blind and VI individuals, with a national sample of 1,056 participants. Although this study highlighted a great deal of demographic, education, and rehabilitation factors that impact on employment, the following were found to be the most salient:

* The data show that 37% of working-age adults who are blind/VI are employed full-time earning a median salary of $35,000—a strikingly similar finding to the federal rehabilitation and labor findings for this population. This finding is also similar to those of existing research (Bell, 2010; Warren-Peace, 2009), putting in evidence that there has not been a change in the employment rate in the last years.
* Of these 37% employed individuals , approximately 67% have access to medical insurance through their work, 63% have access to dental insurance, and 61% have the availability of retirement planning.
* Although men and women who are blind/VI are employed at roughly equivalent rates, a gender gap still exists with men earning on average $10,000 more annually than women. These findings are consistent with those of previous research (Bell, 2010; Darensbourg, 2013; Randolph, 2004; Warren-Peace, 2009).
* No significant difference was identified within the rates of employment or earnings based on other demographic characteristics, such as age, race/ethnicity, or visual impairment classification.
* Those individuals who affiliate with the NFB in this study were employed at a rate of 59%, earning $46,200; whereas, those who affiliate with the ACB were employed at a rate of 42%, earning $37,000. Those who chose not to affiliate with either organization tended to fare better than ACB members, but less well than NFB members.
* As has been demonstrated in previous research, educational attainment was a significant factor in the employment of this population, with those having graduate-level education being employed at more than twice the rate of those with only a high school diploma, and a more than $35,000 difference in annualized earnings.
* Obtaining comprehensive adjustment training was also positively related to employment outcomes, with those being trained at Structured Discovery-based programs being employed at a rate of 60%, earning $49,300 in comparison to those trained at conventionally-based programs, who were employed at a rate of 47%, earning $38,100. These results confirm those of Aditya (2004).
* Recidivism (i.e., the returning for retraining multiple times), was found to be negatively related to employment, with those who receive training four or more times being employed at a rate of 35% in comparison to those who seek training only once being employed at 57%, and those same individuals earning $13,000 less than those who were trained a single time.
* The findings showed that those who use a white cane for daily mobility are employed at a significantly higher rate and earn a significantly greater annualized salary than those who no longer do.
* Those who read Braille on a daily or weekly basis are employed at a significantly higher rate than those who do not, and Braille readers also earn on average $11,000 more than non-Braille readers.
* In combination, the data indicate that individuals who complete training at a Structured Discovery program, who affiliate with the NFB, use a cane for daily mobility, and read Braille are employed at a rate of 75%, earning $53,000 annually.
* In contrast, those who were conventionally trained or not trained, who either affiliate with ACB or no one, and who neither use a cane or read Braille are employed at only a rate of 44%, earning only $36,000 annually.

### Implications

The employment rate for individuals who are blind or VI remains extremely low in the United States. The findings of this study may help consumers and professionals in the field of blindness to pinpoint and work on those factors that influence the acquisition of competitive employment and higher earnings in their particular cases. Education and training seem to be two of the main central factors to have a significant influence. It is extremely important for consumers and professionals, especially in the VR field, to acknowledge the benefits of this type of training. Consumers should become aware of these data about Structured Discovery training in order to be able to make an authentic informed choice about their rehabilitation plan. Of the data obtained through this study, consumers and practitioners should know that:

* Age, gender, racial identity, and degree of visual impairment need not impede one’s ability to obtain employment.
* Education, especially higher education, seems to make a positive difference in the chances of being employed and the amount of money that one can earn.
* Knowing positive role models who are themselves blind appears to be important in the pursuit of education, training, and employment.
* Using a white cane to assist in daily mobility is probably a good idea.
* Knowing and using Braille for reading on a regular basis makes good sense.
* Obtaining comprehensive training up front seems better than getting it piecemeal over time in shorter segments.