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DISABILITY STATUS, DISABILITY TYPE, AND TRAINING AS PREDICTORS OF JOB PLACEMENT

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
Industrial – Organizational Psychology

by
Jessica Anne Stahl
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Accepted by:
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Dr. Fred Switzer

ABSTRACT

Human Capital Theory was used as a means to formulate predictions regarding the placement rates for disabled and non-disabled individuals who participated in job training programs at a non-profit agency in the Southeast. Research suggesting that disabilities are viewed as an economic liability by employers was reviewed, along with empirically based rejoinders to this stereotype. The first goal of this study was to address flaws in the existing categorization systems of disabilities, and to justify a categorization system that was more detailed than the typical psychological/physical disability distinction in the I/O and vocational rehabilitation literature (e.g., Ren, Paetzold, and Colella, 2008). As a second goal of the study, we examined differences in job placement rates using disability status (disabled/non-disabled) and job training as predictors. As a third goal we used our alternative category system of disabilities to examine differences in placement rates as a function of disability type.

First, a functional category of disabilities was formed based on theoretical and empirical research in the fields of Vocational Rehabilitation and psychology. Next, we performed a series of logistic regression utilizing our field sample of 362 clients with disabilities and 2153 without disabilities who participated in job placement services at the agency. Our findings revealed that the negative impact of disability status was partially moderated by job training. In fact, clients with disabilities were more likely to find employment than clients without disabilities if they attended two or more types of training. Differences as a function of disability type were negligible. Implications for the use of the functionally based system of disabilities are discussed, along with limitations of the current study.

DEDICATION

I dedicate this dissertation to my brother, Joshua, who has autism and other special needs. His challenges in the workplace have inspired my research and have ultimately motivated me to earn my Ph.D. in Industrial Psychology. To Joshua, you impact the world more than you know. I would also like to dedicate my research to my mother, who spent her life serving those with disabilities. I hope to continue her legacy through this research and create positive change within the disabled community. To my mother, you were a beacon of light that guided me through this process. Finally, I would like to dedicate this research to my stepfather who has supported me throughout ten years of school. He believed in me when I didn't believe in myself. To Dave, you are the most sincere and earnest person I know.

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This dissertation is a reflection of the wonderful guidance and support I received from many individuals. First, I would like to thank Dr. Mary-Anne Taylor who acted as my teacher, mentor, and "stage mother" throughout graduate school by providing guidance, encouragement, and a shoulder to lean on. She is the reason I came to Clemson. She advised me through my dissertation process, providing sound suggestions on how to improve my work while allowing me the flexibility to make my research my own. I also owe much gratitude to Dr. Jennifer Bisson who has been my office mate, my friend, and my mentor and has made my time at Clemson memorable. She went above and beyond in her service on my dissertation committee and offered expert statistical knowledge. I would also like to thank my other committee members: Dr. Fred Switzer for his constructive input and creative ideas and Dr. DeWayne Moore for his patience and guidance while I worked through the quantitative analyses in this paper.

I would also like to thank Matt Gloster and Goodwill Industries of Middle Tennessee for allowing me to analyze your organization's data. My dissertation would not have been possible without your help. The training and job services you provide give those with disabilities and disadvantages a better quality of life.

Finally, I would like to thank all who have supported me in my journey to achieving my Ph.D. including the Richfield family, the Pendleton Group, Clemson Unitarian Universalist Fellowship, and my step-dad.

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CHAPTER ONE

INTRODUCTION

The exploration of challenges facing the disabled population is a relatively new area in I/O research, gaining popularity after the passage of the Americans with Disabilities Act (Burch & Sutherland, 2006). This legislation emphasized the need for accommodating qualified disabled individuals at work and provided the impetus for organizational decision-makers to carefully consider the obstacles facing this protected group. While some basic studies involving this population can be identified in the industrial psychology, management, and vocational rehabilitation literature (Jensen et al., 2005, Gouvier, Steiner, Jackson, Schlater, & Rain, 1991; Premeax, 2001; Stone & Colella, 1996, Stahl & McCarthy, 2011) much of the existing research may oversimplify the complexity of the challenges faced by those with disabilities. These studies provide evidence that disabled individuals are disadvantaged in the workplace, but more research is needed to truly understand the difference between subtypes of disabilities and their effect on finding employment. Currently, we do not have adequate knowledge of the specific types of disabilities that may be linked to poor employment outcomes. In addition, given that disabled employees' status is private and protected under the ADA, little is known about the types of training that might impact and benefit individuals with disabilities.

Thus, the purpose of the current study was threefold. First, we believe that the categorization system of disabilities is flawed, particularly in regards to mental disabilities. In Vocational Rehabilitation (VR) literature, this category includes all

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emotional, intellectual, and developmental disorders. In this study, we justify a categorization system that separates emotional disabilities from all other types of disabilities. Next, this study provides a comparison point of placement rates between disabled and nondisabled individuals as well as between specific disability categories. Finally, we investigated the differences in placement rates based on disability status (disability/no disability) and examined the moderating effect of attending training.

The study has several applications. First, we provide a more detailed classification system of disabilities that is relevant to employment and training settings. Second, we provide information regarding those disabilities that are linked with the best and worst hiring rates. This may draw more attention to those subgroups that are particularly at risk in terms of employment needs. And finally, we contribute to the training literature by investigating the types of training that facilitate the most positive employment outcomes for disabled and disadvantaged individuals. Overall, our goal is to provide basic information that may facilitate the design of training interventions to increase employment for those with disabilities. Strengthening interventions that facilitate employment for people with disabilities has the consequence of increasing independence for those with disabilities and reducing reliance on government benefits.

Although this study offers many benefits, there are several limitations that should be noted. Goodwill is a training agency, and everyone on record received some type of training. Thus, there is no control group, and we cannot show causation between attending training and increased employment outcomes. However, we can identify types of training that *increase the likelihood* of positive employment outcomes. Second,

training types may be related to one another, causing their individual predictive value of employment outcomes to be overstated. Although multicollinearity may reduce the accuracy of individual predictors, it does not reduce the predictive power or reliability of the model as a whole.

CHAPTER TWO

LITERATURE REVIEW

The Legal Context of Disability Status and Employment

Because the relevance of the current research is partially dependent on a

recognition of the legal context of disability status at work, a review of relevant

legislation spanning the past 50 years is provided. Although discrimination of the

disabled community is a long-standing issue, researchers have noted that responses to this

problem have only been addressed relatively recently (Burch & Sutherland, 2006).

Initially, The Rehabilitation Act of 1973 (P.L. 93-112) highlighted discrimination issues

as it guaranteed certain rights to people with disabilities. Particularly, Section 504 is

widely recognized as the first civil-rights statute for workers with disabilities, which took

effect in May 1977. Its impact on discrimination and employment for the disabled

community is similar to the impact of the Civil Rights Act of 1964 for minority groups

(e.g., African-Americans and women). Although it was only applicable to (1) companies

receiving federal financial assistance, (2) programs conducted by any executive agency,

and (3) federal contractors, its statutes paved the way for the more comprehensive

legistlation found in the Americans with Disabilities Act of 1990 (ADA; P.L. 101-336).

The ADA was a major change in legislation with far-reaching implications for

the employment of disabled individuals. This law applies to all employers who have more

than 15 employees and is applicable to private sector employers in addition to state and

local government agencies, employment agencies, labor organization, and labor-

management committees. (ADA; P.L. 101-336). The ADA is multi-faceted and aims to

ensure quality of life of those with disabilities as well as integration into society and the workplace. Title I, which deals with employment protections, will be the main focus of the current research (ADA; P.L. 101-336). The ADA has four main purposes: (1) the full participation and maximum independence of people with disabilities, (2) defining the dynamic nature of disability, (3) treating discrimination as encompassing both prejudice and barriers, and (4) a focus on enviornmental alterations or accommodations in order to reduce functional limitations and therefore increase employability of disabled individuals (ADA, SEC. 12101)

Legal definition of disability. The ADA was purposely created with broad language to give more discretion to the courts. As described by the EEOC (2013) Title I of the ADA prohibits discrimination against qualified individuals with disabilities in all aspects of employment (e.g., application, hiring, advancement, discharge, compentation) [ADA, Sec. 102 (a)]. To be protected, an individual must (a) have a physical or mental impairment that substantially limits one or more major life activities, (b) have a record of such impairment or (c) be regarded as having such impairment (Sec. 3.2). A major life activity under the ADA of 1990 includes (not exhaustively) hearing, seeing, speaking, walking, breathing, performing manual tasks, caring for oneself, learning, and working. Moreover, this definition goes beyond medical diagnoses and focuses on functional limitations that impede the daily lives of those with disabilities. As will be discussed later, this legal definition is, of course, relevant to understanding the impact of disability on employment but is not as helpful in understanding the work related challenges associated with between different disability types as are other classifications.

Further refinement of the initial definition of disability came in 2008, when the American with Disabilities Act Amendment (ADAAA) was passed. The original ADA was amended in part because the existing classification of disabilities was so restrictive that the statute had little power. In the revised version of the ADA, several additional limitations of life activities were included (not exhaustively): reading, bending, and communicating. Also included are ailments that may affect normal bodily functions of the immune and reproductive systems, as well as normal cell growth and brain functions. These are in addition to ailments of the digestive, bowel, bladder, neurological respiratory, circulatory, endocrine, and musculoskeletal covered by the original ADA (U.S. Equal Employment Opportunity Commission, 2011). Also included are persons with AIDS/HIV or other communicable diseases like tuberculosis as long as no safety risks are posed. Episodic diseases (i.e. epilepsy and diabetes), diseases that are in remission that would qualify in their active stage (i.e., cancer), and substance abusers who are in treatment (i.e., drugs and alcohol) are also protected under this act. (ADAAA, Pub. L. 110-325)

Under this definition at least 900 disabilities are covered under the ADA and its amendment, expanding protections to approximately 19% of Americans (United States Census Bureau, 2010). For employers, the implications of the law are that disabled individuals may have greater access to opportunities, and the employer should play an active role in creating an accessible work environment. While employers may be very motivated to comply with the law, there is an absence of a logical and more parsimonious categorization that allows decision makers to understand the work related implications of

disabilities. In the next segment, we explore alternative ways to understand and classify disabilities.

Defining Disability Categories

This first goal of this study was to determine an appropriate classification system of disability types. As part of this effort, existing categorization schemes were reviewed. Historically, psychologists used medical models to discuss disability, emphasizing disability as pathology (Shaw, Chan, McMahon, 2014). In this way, disability is viewed strictly as a medical problem that could be treated with medication and therapy. Thus, research using this model focuses narrowly on one specific disability (e.g., Multiple Sclerosis or HIV) and its prescriptive treatment. Although many breakthroughs have been achieved using this definition, it fails to recognize the common barriers and experiences found across people with similar disability types. The medical model does not account for complex social, political, cultural, and economic disparities that are experienced by those with disabilities. In addition, it is not sensitive to the different social and employment experiences by those with disabilities in the workplace.

Recent legislation (e.g., Americans with Disabilities Amendment Act of 2008), activist work, and multidisciplinary research have shifted the emphasis on disability as a set of narrowly defined medical conditions toward the notion of disability as a broad and all-inclusive category. This framework of disability is often cited in social models, which focus on understanding why individuals with disabilities are met with societal challenges such as stigma, employment discrimination, and poverty (Barnes, Mercer, & Shakespeare, 1999). Social models view disability as a complicated and multidimensional

concept that reflects the interaction between a person's mind and body and features of his or her environment. Although more relevant and applicable to issues related to the workplace, social models tend to treat the disabled population as a homogenous group, often resulting in oversimplified dichotomous analyses comparing the disabled to the non-disabled (Graffman, Shinkfield, Smith, & Polzin, 2002).

As noted in the previous segment, individuals with disabilities are consistently disadvantaged in employment settings; however, recent research shows that disabled job applicants may not be viewed as equivalent (Premeaux, 2001; Jensen et al., 2005). For example, individuals may respond more negatively to those with psychological disabilities as compared to those with physical disabilities. In response to this and similar findings, researchers have attempted to define and categorize disabilities in a variety of ways to find meaningful associations.

A comprehensive literature review revealed that there is not one standard way of classifying disabilities, and that most typologies have little or no empirical support or theoretical foundation. Instead, categories varied from study to study, using perceived similarities in functional limitation or certain characteristics associated with disability as criteria [(e.g., visibility, threat to society, severity, onset controllability) (Jensen et al., 2005, Gouvier, Steiner, Jackson, Schlater, & Rain, 1991; Premeax, 2001; Stone & Colella, 1996, Stahl & McCarthy, 2011)].

The most prominent classification system used to compare disability types divides disabled individuals by physical and mental disabilities. This is common in the I/O research literature and is illustrated by a meta-analysis using this system. Ren, Paetzold,

and Colella (2008) conducted a meta-analysis of 31 studies and found a significant effect for disability type. The problem, however, is that the criteria for category inclusion for physical and psychological limitations varied from one study to the next, making their conclusions somewhat difficult to interpret. For example, the category of mental disabilities almost always included emotional disabilities (e.g., Bipolar Disorder, Schizophrenia) and may or may not have included learning disabilities (e.g., ADHD) and developmental disabilities (e.g., Autism). The category of physical disabilities almost always included mobility disorders (e.g., Paralysis) and may or may not have included sensory disabilities (e.g., blindness and deafness), issues in dexterity, and any certain losses of function within a bodily system (e.g., cardiac problems, asthma).

Alternative classification schemes recognize that certain categories of disabilities should be examined separately and include a third category of sensory disabilities along with the physical and mental categories. The **RSA-911**, used in vocational rehabilitation programs, consistently groups people with disabilities into three broad categories: (1) sensory/communicative (e.g., visual impairment/blindness and hearing impairment/deafness), (2) physical (e.g., arthritis, spinal cord injury), and (3) mental (e.g., emotional disabilities, developmental, neurological, and learning disabilities). One positive element of this classification system is that it parses out sensory disabilities from physical disabilities, a concept that rarely happens in I/O research. However, the category of mental impairments remained overly broad. This system combines individuals with disabilities as disparate as depression, ADHD, and Down's Syndrome. This is problematic because individuals in the mental category experience such different work

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related limitations.

Jensen and colleagues (2005) proposed more narrowly defined categories. They analyzed data from New Zealand's Disability and Work Participation Survey (N = 3,367) administered as part of the 2001 Household Labour Force Survey. This survey contained 23 binary questions regarding functional impairments of the individual along with several supplementary questions. Results produced 31 potential variables that were factor analyzed in relation to two employment variables: job placement (yes/no) and level of employment (part-time/full-time). Exploratory factor analysis identified 22 items that loaded across six categories. A confirmatory factor analysis yielded a compact classification system of six disability categories based on functional limitation. These categories were (1) vision disabilities, (2) hearing disabilities, (3) restricted mobility, (4) restricted coordination, (5) learning and memory disabilities, and (6) psychological disabilities. They also noted the importance of an "other" category, as 9% of the population did not classify into a category. This study highlighted the complexity of disabilities while providing a useful system that could be applied in the workplace.

Jensen's work provided an important contribution to the literature. However, the typology may not generalize to our specific population. Jensen and colleagues (2005) studied differences in employment outcomes for the disabled population in general, whereas we are looking at a specific segment of low-income, disabled individuals who have who attended job skills training. In the following section, we will discuss the development of our classification system. This was the first goal of the present study. In addition, it facilitated the second and third goals of gaining more specific information on

the employment outcomes associated with each type of disability in relation to training.

Goodwill's Classification System. As demonstrated in Table 2.1, the original data set from Goodwill Industries categorized clients with disabilities into eight categories. To determine the appropriate membership for disability category, clients were first asked a series of 52 binary questions regarding the presence of functional limitations (e.g., memory, concentration, following directions, bending, stooping). For instance, if a client noted a problem with bending or breathing, he/she would be placed in the physical disability category.

One issue in using functional limitation alone as a basis for categorization is that one limitation could be related to many disability types. As illustrated in Table 2.1, the limitation of remembering instructions could be a result of a learning, developmental, or neurological disability. To provide additional clarity, clients were asked to provide (1) medical records documenting any previous diagnoses or (2) an Individualized Education Plan stating their specific disability. Having both a record of functional limitations and medical documentation ensured clients were placed in the appropriate disability category. It also assisted the Career Counselor at Goodwill in finding an appropriate job for each client and identifying appropriate accommodations.

Table 2.1

Goodwill Classification System of Disability

Disability Types	Functional Limitation	Examples of Diagnoses
Blindness	Seeing	Blindness
Deafness	Hearing, Communicating	Deafness
Neurological	Memory, Speaking	TBI, Multiple Sclerosis, Fibromyalgia
Developmental	Reading, Writing, Speaking	Autism, Williams Syndrome
Learning	Following directions, Concentrating, Reading	ADHD
Physical	Bending, Stooping, Breathing	Paraplegic, Shoulder Injury
Emotional	Communicating	Schizophrenia, Bipolar, Anxiety, Depression
Other		AIDS, Cancer

Proposed Category System. One limitation of Goodwill's eight-category

classification is that the categories were not statically derived or validated. Therefore,

the original eight-category system may be overly specific, failing to identify

commonalities among disability types. For practical use in a workplace setting, the most

parsimonious classification system for dividing individuals into meaningful groups

based on functional limitations is preferred. Thus, we propose a reduced classification

system based on previous research as well as statistical validation. Previous literature in

the fields of special education, industrial psychology, and vocational rehabilitation was

used to identify meaningful categories. In addition, we ran an agglomerative,

hierarchical cluster analysis of the eight existing categories to examine the structure of

the disability categories. Using the single linkage method, this cluster analysis yielded a

proximity matrix, which indicated the categories most likely to co-occur. Figure 2.1

displays dendrogram results, a graphical tool for gaining insight into a cluster

solution. The proposed method yields five disability categories: (1) sensory disabilities,

(2) mental disabilities, (3) emotional disabilities, (4) physical disabilities, and (5) other

disabilities.

Figure 2.1

Dendrogram for Disability Type
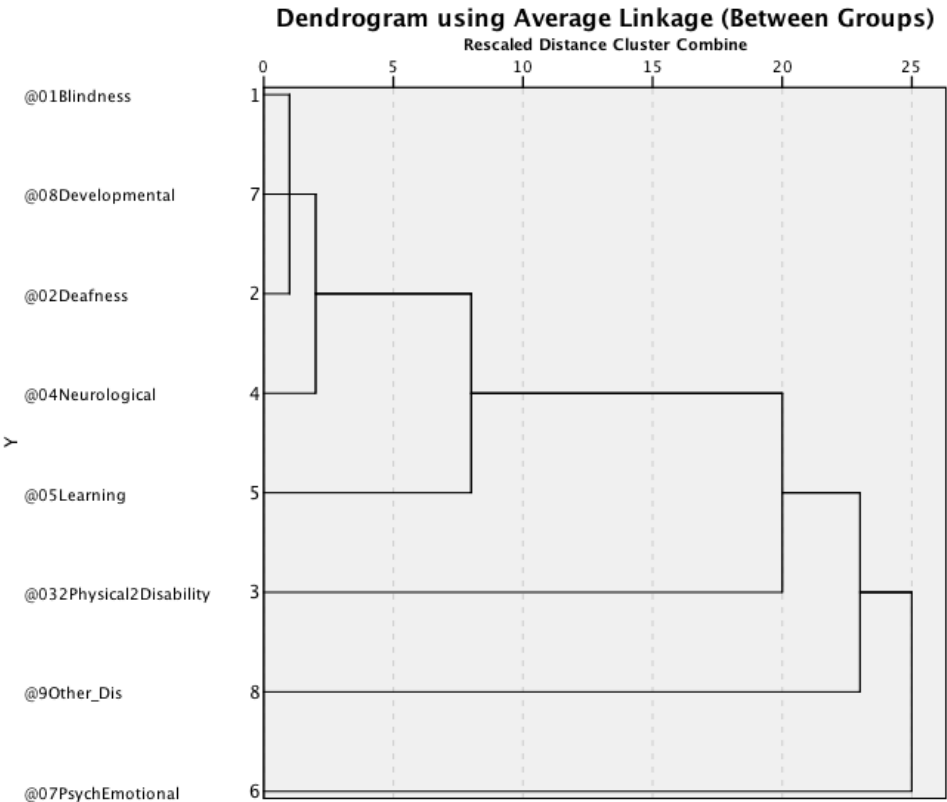
The sensory disability category contains clients who have both blindness and

deafness. These disabilities are always grouped together in Vocational Rehabilitation

research (cf: Dutta et al, 2008). A common functional limitation of sensory disabilities is

communication. Nonetheless, many studies show that those with sensory disabilities are

the least inhibited by their disability and that they have the highest placement rate of any disability type after attending job skills training (Jang and colleagues, 2014; Jensen et al, 2005; Dutta et al 2008). In addition, those with sensory disabilities have the highest work participation rate of any disability type (Disability Compendium, 2014; Office of Disability Employment Commission, 2010). In addition, cluster analysis shows that blindness and deafness are often co-occurring.

Next, we created a mental disabilities category, by collapsing neurological, developmental, and learning disability categories from the original Goodwill system. Cluster analysis results show support that these disabilities are likely to co-occur. There are many diagnoses that fall within these three disability categories, however, they may all result in similar functional limitations including information processing, communication, and memory recall. Jensen and colleagues (2005) use common functional limitations as justification for grouping these disabilities together. Studies utilizing Vocational Rehabilitation data also consistently group the aforementioned disabilities together in a category termed "mental disabilities". In VR studies, individuals with mental disabilities have the lowest placement rates after receiving employment services and attending job training programs (cf:. Dutta et al 2008; Jang and colleagues, 2014).

One issue with the Vocational Rehabilitation classification, touched on earlier, is that it groups those with emotional disabilities together with those with mental (developmental/learning/neurological) disabilities. However, Jensen and colleagues (2005) found that those with emotional and mental disabilities do not function similarly

in a job setting as they have different functional limitations. Similarly, our cluster analysis results show that clients in the emotional disabilities category do not share common limitations with those in the mental disability category. In a training setting, a person with an emotional disorder may have trouble socializing with other trainees or participating in group-based activities whereas someone with a mental disorder may struggle to transfer the skills learned in training to the job. Moreover, our proposed classification system allows the researchers to evaluate the unique impact of emotional disabilities on job placement.

Other classification systems, such as Vocational Rehabilitation, group individuals with any type of physical disability together. However, our physical disabilities category only includes individuals with dexterity and other ambulatory disabilities such arthritis, paraplegia, and chronic back pain. In a training setting, these individuals are not impacted by a lack of cognitive ability or memory issues. In addition, those with physical disabilities are less impacted by stereotypes in an employment setting and more likely to be granted work accommodations than those with mental disabilities (Ren, Paetzold, and Colella, 2008). This may explain why people with physical disabilities are more likely to find employment than those with mental disabilities after receiving job training

Lastly, our model contains a group termed "other" which functions as a catch-all category for clients who did not fit into one of the aforementioned categories. In the physical/mental categorization system prevalent in I/O research, every person is forced into one of two categories. This creates disparity between members within a given

category. In our category system, the "other" category strengthens cohesion of the four specified disability categories, making conclusions more generalizable.

In our model, "other" disabilities was one of the largest categories, which suggests that this category could be further broken down or perhaps better defined. Dendrogram results showed that clients in this category were not likely to have a co-occurring disability in any other category. After speaking with representatives of Goodwill, we learned that clients with autoimmune diseases such as HIV/AIDS and diseases affecting internal bodily functions (e.g., liver cancer, acid reflux) are grouped into this category. Nonetheless, we cannot draw conclusions without specific diagnoses. In the future, we suggest that Goodwill create a separate category for these individuals.

This classification system may inform future research by providing more specific and detailed information than that provided by the physical/psychological distinction (cf: Ren, Paetzold, and Colella, 2008); however, there are some limitations to be noted. First, the categories discovered were based on the preexisting Goodwill system for diagnosing and describing disabilities. Although Goodwill has a more comprehensive system than most firms, the items are firm-specific. The advantage of using Goodwill's system is that this organization's primary mission is training, and thus the system is well suited for investigating the impact of disabilities on work related outcomes. As noted earlier, this is a specific population of disabled individuals with low socioeconomic status who received job training. Thus, this category system, while helpful in understanding disabilities in general, may be more generalizable to similar populations. See Table 2.2 for additional information.

Table 2.2

Proposed Disability Categories

Category	Disability Types	Functional Limitation	Examples of Diagnoses
Sensory	Blindness	Seeing, Communicating	Blindness
	Deafness	Hearing, Communicating	Deafness
Mental	Neurological	Memory, Speaking	TBI, Multiple Sclerosis, Fibromyalgia
	Developmental	Memory, Reading, Writing, Speaking	Autism, Williams Syndrome
	Learning	Memory, Reading, Concentrating	ADHD
Physical	Physical	Bending, Stooping, Breathing	Paraplegic, Shoulder Injury
Emotional	Emotional	Communicating, Social Interaction	Schizophrenia, Bipolar, Anxiety, Depression
Other	Other		AIDS, Cancer

In the next segment we will discuss the relationship between disability and employment. We predict that there will be significant differences in job placement rates between disability categories. In other words, we believe that some disabilities cause a greater disadvantage than others in the job search process. In the next section, we will discuss how stereotypes affect job placement for those with disabilities.

Placement Rates Between Disability Types

In the current study, we will focus on the placement rates experienced by disabled versus non-disabled individuals, and on the differences in placement rates within the disabled population. As a first step, we will examine the differences between those who are disabled and non-disabled.

It is well documented that social stigma is a barrier to employment for those with disabilities (Chan, Strauser, Gervey, & Lee, 2010; Brostrand, 2006; Braddock & Bachelder,

1994). One study demonstrated that employers view individuals with disabilities less favorably than older workers, racial minorities, and even ex-offenders (Bowe, 1978). Employers are likely to believe that those with disabilities have higher turnover rates and absenteeism than non-disabled employees (Braddock & Bachelder, 1994). Thus, stereotypes regarding disabilities may serve as a social barrier to those who have potential worth and value to an organization.

Ample research exists that supports the notion that employees with disabilities are also viewed as an economic liability. Kaye, Jans, and Jones (2011) surveyed human resource professionals and supervisors working for businesses and government entities known or reputed to be reluctant to hire and accommodate workers with disabilities. They were asked to assess various possible reasons that employers in general might not hire, retain, or accommodate workers with disabilities. The top three reasons, each endorsed by 80% of respondents, refer to the cost of accommodations, lack of awareness as to how to deal with workers with disabilities and their accommodation needs, and fear of being stuck with a worker who cannot be disciplined or fired because of the possibility of a lawsuit. Other reasons for not employing disabled individuals were subpar work skills and experience and poor work attitudes.

In addition, employers often overestimate the economic cost of accommodations. According to the Office of Disability Employment Policy (2009), nearly half of all employers (46%) surveyed reported that accommodations cost them nothing. When employers did pay for accommodations, the average cost was less than $500, suggesting that beliefs about monetary burdens incurred by accommodations are exaggerated.

Specifically, employers and senior level management often think workplace accommodations will be expensive and worthless, but in fact reasonable accommodations have proven to be economical and beneficial in terms of injury prevention, compensation costs, and corporate morale (Groschl, 2012).

It would be overly idealistic to suggest that there are no economic liabilities associated with any disability. However, empirical data shows that the negative attitudes and beliefs noted do not reflect the economics of hiring the disabled. In fact, employees with disabilities offer competitive performance quality in comparison with their able-bodied peers (Ren, Paetzold, & Colella, 2008). Reisman and Reisman (1993) interviewed 65 supervisors and found that disabled employees' performance ratings were higher than the general workforce in punctuality, attendance, and ability to accept constructive criticism. Ren, Paetzold, and Colella (2008) confirmed that no differences existed in performance ratings between the disabled and nondisabled population. In addition, research has shown that disabled employees produce higher safety ratings and have lower turnover/absenteeism rates than persons without disabilities (Greenwood & Johnson, 1987; Stone & Colella, 1996). Again, this research combines disabled individuals into a homogenous group so some caution should be used in generalizing findings to specific groups of disabled individuals.

Moreover, employers may use disability status as a proxy for determining an individual's economic potential and worth, even if it is unfounded. Particularly in the hiring process, opportunities may be stripped from this subgroup when employers feel that persons with disabilities are less capable and dependable (Kosyluk, Corrigan &

Landis, 2014). While these general stereotypes of the disabled may be common across many types of disabilities and serve as a disadvantage for many members of this group, a considerable amount of research has demonstrated that people vary in their negative reactions to individuals with different disability types (e.g., Combs & Omvig, 1986). This is due to the fact that observers have substantially different stereotypes for people with various disabilities and respond accordingly (Ren, Paetzold, and Colella, 2008). In the next segment, we review the limited existing research in this area in order to appreciate the diversity in the obstacles faced by the disabled.

Comparison Between Disability Types. In the hiring process, studies have shown that there is a hierarchical preference in which those with emotional disabilities are seen as the least desirable job applicants, followed by those with physical disabilities who were slightly more desirable, followed by those with no disabilities who were the most desirable (Combs & Omvig, 1986; Diksa & Roger, 1996; Stahl & McCarthy, 2011). Moreover, people with emotional disabilities suffer from the greatest stigmatization in the workplace, and thus face the greatest barriers to employments (Thornicroft, 2006; Ren, Paetzold, and Colella, 2008).

Additional research confirms a wide range of negative beliefs regarding hiring individuals with mental health needs. Employers have concerns about work performance (quality and quantity, brief tenure, absenteeism and low flexibility), work personality (including the need for excessive supervision, difficulty following instructions and poor ability to socialize) and the symptoms of the mental health needs (workplace violence) (Diksa & Rogers,1996). Observers may infer that individuals with mental illnesses are

more unpredictable regarding their behavior or performance, and interacting with them may induce great anxiety or fear (Paetzold, 2005). They are seen as less ideal employees and more as potentially difficult, even dangerous, individuals, despite evidence to the contrary (e.g., Corrigan, 2005; Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999). Persons with a mental illness may also be perceived as more "sick" or "sad" than people with physical disabilities (Berven & Driscoll, 1981) and thus receive more harsh treatment (Farina, Gliha, Boudreau, Allen, & Sherman, 1971). People sitting in a wheelchair may evoke entirely different reactions. They are often believed to be courageous and highly motivated. However, those with this specific type of disability are also negatively stereotyped, given that they may be seen as bitter (Stone & Colella, 1996).

In summary, existing research suggests that disabled individuals are perceived as having lower levels of economically valued traits such as productivity and dependability. These negative stereotypes may lead to discriminatory behavior in finding employment. Thus, understanding which groups are most disadvantaged in finding employment is an important goal for researchers. Some theoretically based work provides a foundation. Foschi (2000) proposed the double standards model, which provides an account of the process of how stereotypical beliefs lead to discriminatory behavior. In essence, a double standard is created based upon the stereotypes linked to a person's status such as age, race, or disabilty. In subjective hiring situations, it will be harder to show high performance for someone who is already negatively stereotyped and harder to show poor performance for someone already positively stereotyped; this is referred to as a double standard.

While the literature reviewed above suggests that there may be significant differences in the employment outcomes experienced by disabled and non-disabled individuals, there is also reason to expect that there are significant differences in the experiences of those within the disabled group. In the next segment, we examine studies that compared actual placement rates across disability types.

Placement Rates. Studies within Vocational Rehabilitation compare disability types and employment outcomes. This work is particularly relevant to the current study given that VR is a training organization similar to Goodwill. Dutta and colleagues (2008) analyzed data from United States Department of Education, Rehabilitation Service Administration Case Service Report (Form 911) which contains personal history, types of services, and employment outcome information on all clients receiving state vocational rehabilitation services in the United States (N = 616,879). A stratified sample of 15,000 clients was used with 5,000 clients in each disability category. For the overall sample, the employment success rate - as defined by job placement- was 62%, with individuals with sensory/communicative disabilities having the highest employment rate (75%) compared to 56% for people with physical disabilities and 55% for people with mental impairments. In addition, 19% of individuals with sensory/communicative impairments reported finding employment at the professional/technical level as compared to 16% for people with physical impairments and 7% for individuals with mental impairments (Dutta et al, 2008).

Jang and colleagues (2014) found similar employment rates showing the most successful clients as those with visual disabilities (86.6%), followed by disabilities in

hearing (74.1%), physical (61.9%), intellectual/learning disabilities (73.9%) and finally emotional disabilities (50.7%). However, this is not a consistent finding. Martz and Xu (2008) found that vocational rehabilitation clients with visual disabilities had the lowest employment rate (78.7%), and those with learning disabilities had the highest (93.3%). These findings suggest that additional research is needed to clarify the link between disability type and employment outcomes.

As noted earlier, Jensen and colleagues (2005) classified disabilities into six categories. Next, they used a series of regressions to estimate employment outcomes for those with and without disabilities, controlling for age, gender, race, education, marital status, and having children. They compared the employment outcomes for each group to a synthetic data set representing an able-bodied population to create employment ratios. Results showed that those with disabilities were less likely to be employed than those without disabilities (82%), and were less likely to obtain full-time employment (46%). More relevant to the current goal of showing that differences exist within disabled individuals, ratios were also calculated across the six disability categories. Those with vision disabilities and psychological disabilities were most affected by their disability in regards to employment (62% and 63%). Those with hearing disabilities were the least affected by their disability (87%). In regards to full-time employment, those with psychological and restricted mobility were the most affected by their disability (29% and 30%), while those with hearing disabilities were the least affected (45%). Again, this work suggests that disabled individuals experience different outcomes as a function of the

type of disability they have, although research seldom uses such distinct categories as those used by Jensen.

Given the above stated research, we predict that those with disabilities will have lower placement rates than those without disabilities. In addition, we predict that those with emotional disabilities will have lower placement rates than those with physical disabilities. This is consistent with meta-analytic findings discussed earlier (Ren, Paetzold, & Colella, 2008). We also believe that clients in the learning/developmental/neurological or mental category will have the lowest placement rates of any group. This is because they are more likely to be severely impacted by their disability in the training process. Based on the review of the literature on disadvantages facing the disabled, we formulate the following hypotheses:

Hypothesis 1: *Clients with disabilities will have lower placement rates than clients without disabilities.*

Hypothesis 2: *There will be a main effect for disability type and employment outcomes.* Given the research regarding the disadvantages facing specific types of disabled individuals, we also hypothesize that:

Hypothesis 2b: *Those with emotional disabilities will have lower placement rates than those with physical disabilities.*

Predicting Employment Outcomes

In the next section we will discuss the role of training in predicting job placement for those with disabilities. Specifically, we will examine job placement rates after attending three types of training. We will also explore the interaction between training

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and disability status in regards to job placement outcomes. We hypothesize that the impact of training will vary between individuals who have disabilities versus those who do not. We also expect to find differences in placement rates between different disability categories as a result of attending training.

The theoretical concept used to frame our research question is human capital theory, which will be discussed in detail in the following section. The definition most relevant to the current study is provided by Becker (1964) who describes human capital as an individual's unique set of personal abilities and skills that can be applied to the workforce. While this implies that the starting point for human capital is zero, and all skills and abilities add positive worth to the person, this may not be the case for disabled individuals. As noted earlier in the discussion on stereotypes, even when all qualifications are the same, a person with a disability is less desirable than an able-bodied individual (Stahl, McCarthy, 2011; Ren, Paetzold, & Colella, 2008; Combs & Omvig, 1986). "Less desirable" is often described in economic terms such as costs of accommodations, and losses incurred from excessive absences.

Moreover, we describe human capital as a comprehensive profile of a person including one's disability status, which may decrease the likelihood of finding employment, and one's job relevant skills that may increase the likelihood of job placement. This is particularly relevant to training, since the Goodwill training system is designed to provide clients with more job related skills.

Human Capital Theory and the Benefits of Training. An understanding of Human Capital Theory provides a background for understanding how disabled

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individuals are viewed in organizations and why training may be critical in enabling the employment of disabled applicants. As noted earlier, disabled individuals may be viewed as an economic liability by companies. Training and enhancing their job skills is one means of countering the perception that they lack the knowledge, skills, abilities, and other characteristics (KSAOs) needed for successful job performance.

Becker (1964) proposed the theory of human capital as an economics theory, but it has since emerged across a variety of disciplines. Human resource management (HRM), strategic resource management (SRM), and industrial psychology all examine the concept of human capital, but explore the theory through different lenses (Wright, Coff, & Moliterno, 2014). Much of the industrial/organizational psychology research in this domain tends to overlap with micro-economics, evaluating individual-level human capital characteristics. In this way, we are looking at an individual's particular "portfolio" of human capital comprised of a unique set of KSAOs. Results of training may be relatively "intangible" and harder to communicate to company executives. As noted earlier, because of the disadvantages and discrimination faced by disabled individuals, training may be critical for this group. The current research will link training on a variety of skills to economically relevant post-training outcomes including job placement post-training.

This individually focused approach contrasts with the organization level analysis that is most prominent in the economics and management literature. For example, strategic human resource management (SRM) takes a more macro-level approach, aggregating individual human capital of employees into a unit-level resource index. Thus, this

corporate-level application of Human Capital Theory may not focus on individualistic KSAOs, but rather focuses on broad based departmental and organizational indices. This organizational level perspective also incorporates a consideration of how organizational processes and the economic environment impact human capital (Ployhart & Moliterno, 2011). While this macro-level perspective may have many practical applications for evaluating the overall strengths and weaknesses of personnel, it is heavily concentrated on an organization's profits and systems elements, and it overlooks the effect that micro-level or personalized interventions may have on individualistic improvement. The perspective taken in the current study is that a more individualized analysis of the return on investment of training may lead companies to focus their efforts on the types of training that show the most benefits for a given demographic group. Specifically, the results of this study should allow us to examine which types of training are most beneficial for individuals with specific types of disabilities. Benefits are operationalized as job placement. Other applied benefits of this study are that, this micro or individual-level approach may allow companies to tailor their training programs to allow the maximum benefit for individuals, and in turn, the firm. From a societal perspective, training and placement may increase the economic independence of disabled individuals and reduce their financial dependence on the system.

A first step in arguing that there is a logical relationship between training and placement is provided in the next segment. We examine the evidence for the economic benefits of training, providing an overview of the costs and returns of typical interventions. While research on disabled populations is limited, we summarize the work

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on vocational rehabilitation and its success as a means to support our case that investment in training carries benefits for this specific population.

Economic Benefits of Training. Organizations in the US spend approximately $126 billion annually on training and development (ASTD, 2010). Research suggests that these investments are well worth the cost. Organizations that employ training initiatives report increased worker productivity, improved work quality, enhancements in workplace safety, higher staff retention, and increased economic resilience (Kim & Ployhart, 2014). Essentially they out produce and outperform their competitors. In a longitudinal study of 359 firms over 12 years, Kim and Ployhart (2014) found that internal training directly impacted firm profit as well as indirectly impacted it through increased productivity.

From a government perspective, investing in individuals leads to a more educated workforce, which spawns economic growth and increased competitiveness in the global marketplace (Reich, 2010). In 2011, the government spent over six billion dollars on employment training services and $66 billion on education. Examples of these investments are government based vocational training (e.g., JOBS program for low-income individuals) and the GI bill, which allocates funding for soldiers to attend college after duty (Bureau of Labor Statistics, 2011). Evidence of the return on government investments can be seen through national unemployment rates. In 2011, the average unemployment rate among college graduates was 4.9%, as compared to 9.4% among high school graduates, and 14.1% for those without a high school diploma or GED.

Although there are clear distinctions between employment training and formal education programs, the two initiatives share in common the goal of increasing one's job

relevant skills. From an individual level perspective, human capital theory has consistently proven that increasing your knowledge and skills through job skill training and education leads to increased employment opportunities and earning potential over time (Borjas, 2005). Borjas (2005) found that on average, each additional year of education returns a 9% increase in earnings (Borjas, 2005). In 2011, the average annual income for college graduates was $54,756, compared to $31,900 for high school graduates, and $23,452 for high school dropouts. In regards to job training, research calculates the average rate of return at 10% (Abadie, Angrist, & Imbens, 2002). In addition, those who participate in employment training have increased job security, are less likely to face unemployment, receive more promotions, and occupy more senior level positions (OCED, 2004).

Training and Disability in Industry. As seen in the previous discussion, there is an overwhelming body of literature showing a strong positive correlation between training and education and increases in employment outcomes; however, it is unclear if the same benefits are realized by the disabled population. There are several reasons for the lack of research. First, studies conducted within organizations cannot legally compare training outcomes between the disabled and general populations due to ADA regulations regarding the privacy of disability status. Second, research regarding employment outcomes for the disabled are often based on hypothetical hiring scenarios from generated resumes, which only gauge general perceptions towards the disabled rather than quantifying gains in human capital (e.g., Govier, Stone & Collela, Stahl & McCarthy, 2011). Given that organizations such as Goodwill invest heavily in training for disabled

and at-risk populations, building an argument that similar benefits may be realized by the disabled in terms of job placement is an important step in gaining support for such programs.

Data from national employment surveys often serves as a foundation for comparisons between disabled and nondisabled individuals. An undisputable discrepancy exists between employment rates and wages of the disabled versus non-disabled; however, the impact of training for this population is less clear. Hollenbeck & Kimmel (2001) found that people with disabilities earn a positive return to education and training; they found this return to be equal to those without disabilities. They calculated this return by indexing wage increases between those who attended training and those who did not. This does not mean that disabled and non-disabled individuals have equivalent income after training; it simply means that their incomes increased by the same percentage rate. Similarly, Hotchkiss (2003) analyzed SIPP (Survey of Income and Program Participation) data from 1981-2000 and found positive returns for training and education for both the disabled and non-disabled populations. However, he found that people with disabilities achieve *greater* return on education than those without disabilities. Baldwin and Johnson (2000) confirm these findings, but state that individuals with highly stigmatized disabilities (e.g., bipolar disorder, AIDS) receive the greatest return (.053%), and those with non-stigmatizing disabilities (e.g., Paraplegic) achieve similar rates of return as the non-disabled group (.044% and .055%).

Training in Vocational Rehabilitation Settings. A large portion of employment research within the disabled population is conducted by the Division of Vocational

Rehabilitation, also known as "VR." It is a division of the Department of Labor program and operates on both a state and federal level. The goal of this agency is to help people with disabilities find and maintain employment. First, VR addresses indirect aspects of employment such as housing, nutrition, child-care, and most importantly, mitigating the adverse effects of one's disability through medication adjustments and therapy. Next, VR provides career services including job training and job placement services Depending on individual goals and abilities, possible services include resume development, computer training, interview preparation, and industry specific training (e.g., healthcare, warehouse, customer service) (Elliot & Leung, 2004).

With these comprehensive services, VR expenditures exceed $2.5 billion each year. The economic value of VR services has been consistently supported by literature, demonstrating the clear link between job training and employment success of those with disabilities (Bolton, Bellini, & Brookings, 2000; Jang, Wang, & Lin, 2014). In general, employment rates of people with disabilities after receiving VR services are around 60%, with the average income at $9.89 per hour (Rosenthal, Chan, Wong, Kundu, Dutta, 2006). After receiving employment, clients reported increased self-esteem, greater financial comfort, and improvements to their overall quality of life (Bond et al., 2001). In addition VR consumers pay back the investment in their training in 2-4 years through employment taxes (Hanophy, 2012).

VR literature provides support that disabled individuals respond to training, but it is unclear as to which type of training provides the most benefit and if this benefit is

comparable to the benefit received by those without disabilities. In the next section we will discuss three types of job training we believe impact job placement.

> ***Job readiness training.*** Goodwill offers job readiness training - a group class that provides individuals the skills needed to obtain a job. This includes completing a job application, learning interviewing skills, and learning appropriate work behaviors (e.g., methods for getting to work on time, appropriate dress and grooming, methods for increasing productivity). Preliminary work shows that the types of social interactions and relationship training used in the Job Readiness training at Goodwill can be effective in increasing social skills which are central to success at work. These positive findings have been reported for disabilities including sensory impairments and mental disabilities (Argentzell, Leufstadius & Eklund, 2014; Bloeming-Wolbrink, Janssen, Ruijssenaars, Menke & Riksen-Walraven, 2015). Not surprisingly, the increase in social skills is often accompanied by greater levels of well-being and self-efficacy. Thus, Job Readiness training may be a significant means for enhancing employment opportunities as well as personal well being. Conversely, Dutta et al. (2008) found that participating in job readiness training in Vocational Rehabilitation had no impact on gaining employment for clients with any type of disability; however, this training only included learning appropriate work behaviors. Given the more comprehensive job readiness training that Goodwill offers and the support from the aforementioned literature, we predict that it will have a positive impact on employment outcomes.

Hypothesis 3: *Participating in job readiness training will increase the likelihood of job placement for all disability categories*

Digital Literacy Training. Goodwill offers digital literacy training, a group class that provides individuals with basic computer skills to assist in their job search and resume preparation. While investigations of the effectiveness computer skills training for the disabled is more limited, there is some research that shows that computer skills training and related employment training is an effective means to enhance employability of individuals with disabilities (Hutchinson, Anthony, Massaro & Rogers, 2007). Similarly, Dutta et al. (2008) found that electronic job search training offered in VR Service increased employment rates for those with physical and mental disabilities. Moreover, we expect to find a positive relationship between digital literacy training and job placement for those with disabilities.

Hypothesis 4: *Participating in digital literacy training will increase the likelihood of job placement for all disability categories.*

Vocational skills training. Goodwill offers over 30 occupational skills classes designed to prepare clients for a specific career path as a fork-lift operator, security guard, custodian, document archivist, or call center representative. Also included in this category is health care training, a four-week class that provides skills for entry-level jobs in the health care industry. More information on these specific trainings is located in an appendix. We recognize the content differences between trainings; nonetheless, all vocational skills will be examined as a singular category.

Research relevant to this category of training suggests that it also has a positive impact on the employment outcomes of disabled individuals. Hayward and Schmidt-Davis (2003) found that vocational training increased the likelihood of finding a job for

those with disabilities. OCED found that participating in employment training led to increased job security, lower unemployment rates, faster promotion rates, and more senior level positions for those with disabilities (OCED, 2004). Cuvo, Jacobi, and Sipko (1979) found that disabled individuals with limited intellectual capacity responded to vocational skills training. Specifically, the researchers showed that those with developmental disabilities were able to master tasks including folding and sorting clothing. This is highly relevant to our sample given that many of the trained individuals are placed in Goodwill's retail warehouse with job duties of sorting, tagging, and hanging clothing. Given the support in the aforementioned studies, we believe vocational skills training will increase the likelihood of finding a job for those who have disabilities.

Hypothesis 5: *Participating in vocational skills training will increase the likelihood of job placement for those with disabilities*

> ***Number of services.*** Goodwill allows clients to participate in multiple types of trainings. Wheaton and Wilson (1996) confirm a positive relationship between the number of VR services and positive employment outcomes. Human capital theory also supports that as a client's job knowledge and relevant skills increase, the likelihood of finding a job and his wage also increase (Becker, 1964).

Hypotheses 6: *There will be a positive relationship between number of training types attended by disabled individuals and job placement.*

In summary, we predict that each type of training will lead to positive employment outcomes for those with disabilities.

CHAPTER THREE

METHODS

Goodwill Industries

Founded in 1957 as a not-for-profit, Goodwill Industries of Middle Tennessee's

mission is to sell donated goods to provide employment and training opportunities for

people who have disabilities and others who have trouble finding and keeping jobs.

Goodwill is one of Middle and West Tennessee's largest employers of people with

disabilities with more than 80 percent of the workforce reporting some type of disability

or disadvantage.

Sample

After data cleaning, our sample included 1799 clients with disabilities and 7309

without disabilities that received employment services or job training from Goodwill in

2012. We focused on a subset of the sample who received job placement services

including 362 clients with disabilities and 2153 without disabilities, but who had other

disadvantages.

This sample is comprised of low-skilled workers with low socioeconomic status

who are searching for entry-level positions. For clients with disabilities, 87% experienced

challenges to their employment in tandem to their disability status. Nearly 60% of clients

with disabilities were chronically unemployed, 24% were ex-offenders, 10% did not

graduate from high school, and 6% relied on government assistance. Other challenges

included homelessness (6%), advanced age (6%), and a lack of literacy (3%). For those

without disabilities, 96% were disadvantaged. Nearly 90% of clients without disabilities were chronically unemployed, 28% were ex-offenders, 12% did not graduate from high school, and 14% relied on government assistance. Other challenges included homelessness (4%), advanced age (4%), and a lack of literacy (2%).

Procedure

The data in this study was collected by Goodwill Industries as part of their routine reporting process. Trained Career Counselors that worked one on one with clients inputted data via a computerized system. The accuracy of client reporting was monitored monthly by the Career Solutions Manager.

Measures

The variables of interest to this study included disability status, disability type, the specific training programs a client attended, and whether that client received placement.

Disability. Disability status was entered as a dichotomous variable indicating if a client was disabled or nondisabled. To determine disability type, clients were asked to provide (1) medical records documenting any previous diagnoses or (2) an Individualized Education Plan stating their specific disability. Having both functional limitations and medical documentation ensured that clients were placed in the appropriate category. We analyzed four typologies of disabilities. The original Goodwill category system classified clients into eight categories; however, we created three additional typologies by collapsing the original Goodwill categories. In each analysis, the type of disability was factor coded, and clients occupying multiple disability categories were excluded from

analyses. It was possible for clients to have more than one disability within a single category such as blindness and deafness in the sensory disability category.

Training. In this study, we analyzed the result of attending three types of training including Job Readiness training, Digital Literacy training, and Vocational Skills training. Digital Literacy training was an umbrella heading for three subtypes of training including computer basics, resume basics, and job search assistance. Vocational Skills training included multiple types of trainings that are listed in an appendix. It is possible that clients attended more than one type of training within a specified training category; however, this is not reflected in our analyses. In addition, many clients attended training across multiple categories, thus training could not be factor coded. Instead, each type of training operated independently. For each type of training a client attended, they received a 1, whereas those who did not participate received a 0.

Total Number of Training. The number of training types that an individual attended may impact his or her employment outcomes. Services were tallied across the three types of training, including Job Readiness training, Digital Literacy training, and Vocational Skills training, resulting in a score from 1-3.

Sequential Order of Training. It was determined by Goodwill industries that clients who attended multiple trainings usually did so in a specific sequence: Job Readiness, Digital Literacy, and then Vocational Skills. With this knowledge, we created a factor coded variable with 1 = Job Readiness only, 2 = Job Readiness + Digital Literacy, and 3 = Job Readiness + Digital Literacy + Vocational Skills.

Placement: Placement differentiates between those who were hired, and those

who were not. This was a binary outcome coded as 0 for no placement and 1 for placement. In some cases, the Career Counselor facilitated the direct placement of the client, but more often, clients were instrumental in the placement process.

Hypotheses

Hypothesis 1: *Clients with disabilities will have lower placement rates than clients without disabilities.*

Hypothesis 2: *There will be a main effect for disability type and employment outcomes.*

Hypothesis 2b: *Those with emotional disabilities will have lower placement rates than those with physical disabilities.*

Hypothesis 3: *Participating in job readiness training will increase the likelihood of job placement for all disability categories*

Hypothesis 4: *Participating in computer basics training will increase the likelihood of job placement for all disability categories.*

Hypothesis 5: *Participating in work skills training will increase the likelihood of job placement for those with disabilities*

Hypotheses 6: *There will be a positive relationship between number of training types attended by disabled individuals and job placement.*

Hypotheses 6b: *There will be a positive relationship between the sequential number of trainings attended by disabled individuals and job placement.*

CHAPTER FOUR

ANALYSES

Data Cleaning

Before any analyses were run, the data was refined. First, all clients under the age of 18 were removed to comply with Clemson University's research policies. In addition, all clients who attended the Summer Youth were removed, as their training and placement strategies were determined to be significantly different than those utilizing other services. Finally, clients were deleted from analyses who had placement dates that proceeded their entrance dates into the organization. This ensured that only accurate and complete data was being reviewed.

In addition, we utilized job placement services as a qualifying variable for further analyses. This excluded 70% of our sample. There is a four to six week time lapse from a client's initial intake to enrollment in job placement. This may have contributed to the unusually high attrition rate. Once a client enters job placement services, clients work one-on-one with a career counselor, receiving job search and placement assistance. In addition, clients are tracked in a more accurate way. By reducing our sample, we may lose power, but our conclusions will be more generalizable.

Impact of Disability Status and Disability Type on Placement

Because the dependent variable (placed) was dichotomous in nature, logistic regression was appropriate (Cohen & Cohen, 1983; Peng, Lee, & Ingersoll, 2002). In logistic regression, the binary response variable is transformed into the linear logit, and the analyses are performed on the logit. When discussing hiring ratios, it is common to

report the probabilities or the likelihood of an employment outcome. Thus, we transformed the predicted logits of employment into probabilities of employment (Peng & So, 2002).

<u>Hypotheses 1</u>

Using logistic regression, Hypothesis 1 tested the difference in placement rates between disabled and non-disabled individuals who received any type of job training. There was a main effect for disability on job placement $\chi^2(1) = 12.286$, p <.001. See Table 4.1 for additional details. To interpret this effect, we compare the predicted probabilities of employment of disabled and non-disabled individuals (Peng & So, 2002). For disabled individuals, the probability of finding placement is 62% compared to 71% for those without disabilities. The mean difference of 9% demonstrations that having a disability decreases the likelihood of being placed. Thus, hypothesis 1 was supported.

Table 4.1
Logistic Regression for Disability on Placement

					95% CI for Odds Ratio	
Predictor	B	SE	$\Delta\chi^2_{removal}$	Odds Ratio	Lower	Upper
Constant	.473	.108	--	--	--	--
Disability	.419*	.118	3077.946	1.520	1.206	1.916

Notes: * $p < .001$, Model $\chi^2 = 12.286$, df = 1, n = 2515, R^2_L = 0004. Initial -2 Log Likelihood (-2LL) = 3090.232, Model -2 LL with predictors = 3077.946.

<u>Hypotheses 2</u>

In hypothesis 2, we compared job placement rates for each disability category using four different classification systems or typologies of disabilities. Given that our typology was new, comparing results across a range of different categorization systems allowed us to compare and contrast the results using alternative systems. We tested a two-category model, a three-category model, the original eight-category model used by Goodwill and our proposed five-category model of disabilities.

Two-category model. The first typology divided the dataset into individuals with mental and physical disabilities. As noted earlier, this is the most common typology in the Industrial/Organizational psychology laboratory investigations on disabled individuals and employment issues, so this simple categorization allows us to compare field data with the I/O laboratory research. Those with disabilities that were not classified as either mental or physical disabilities were excluded from this analysis. The omnibus test showed no difference in placement rates between the two groups, $\chi^2(1) = .050$, p =.822. The probability of finding a job for those with physical disabilities (n=105) and mental disabilities (n=164) were 65% and 63%, respectively.

Three-category model. Next, we compared placement rates for individuals with physical, mental, and sensory disabilities. This is a slightly more complex categorization system and is also commonly found in investigations of the impact of disability on employment, primarily in the Vocational Rehabilitation literature. Again, the omnibus test for the model showed no difference in placement rates between the three groups, $\chi^2(2) = .189$, p =.901. The probability of finding a job for those with physical (n=83),

mental (n=164), and sensory (n=19) disabilities was 64% and 63%, and 68% respectively.

Eight-category system. Next, we analyzed the original Goodwill classification system with eight disability categories. This is the most complex system investigated in terms of number of distinctions made among disabilities. Again, there were not any statistically significant differences in placement rates between individuals with disabilities, $\chi^2(7) = 3.610$, p = 823. The probability of finding a job and the sample size for each category is listed in Table 4.2. It should be noted that the low number of participants in categories such as blindness, deafness, developmental and neurological disabilities may have reduced the power to detect significant differences in placement rates between disability types.

Table 4.2

Goodwill Classification Model: Probability of Placement For Disability Type

Disability Type	Probability	N
Deafness	.75	12
Blindness	.67	6
Emotional	.67	83
Neurological	.64	14
Physical	.63	76
Developmental	.58	12
Learning	.56	39
Other	.57	81

New Five-Category Model. Finally, the five-category model developed as part of the current study was tested. Again, there were not any statistically significant differences in placement rates between individuals with disabilities, $\chi^2(4) = 2.791$, p =.593. See Table 5 for the probabilities of finding a job for each disability type. It is important to note that this analysis may have lacked power to detect differences between disability types given the small sample size (n=18) for sensory disabilities.

Table 4.3

Five Category Model: Probability of Job Placement Between Disability Types

Disability Type	Probability	N
Sensory	.72	18
Emotional	.67	83
Physical	.63	76
Other	.59	98
Mental	.58	66

N = 341

Impact of Training on Placement

Next we examined the impact of three types of training on placement for those with disabilities. The three types of training included Job Readiness, Digital Literacy and Vocational Skills Training. These analyses were conducted using logistic regression and variables were dummy coded. Clients were assigned a 1 if they attended the specific type of training and a 0 if they did not. It is important to note that all clients attended one or more types of training, thus that there is no control group of individuals who did not

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participate in any type of training. We can only examine whether attending one specific type of training versus other types of training influenced placement rates.

Hypothesis 3

In hypothesis 3, we evaluated Job Readiness training on placement rates. There were no significant differences in placement rates between individuals who received Job Readiness training and individuals who did not receive this type of training as part of their job placement services, $\chi^2(1) = 2.220$, p =.136. The probabilities of finding a job for those who attended Job Readiness training (n = 246) and those who did not (n = 116) were 64% and 56%, respectively. Thus Hypotheses 3 was not supported.

Hypothesis 4

In hypothesis 4, we evaluated Digital Literacy training on placement rates. There were significant differences in placement rates between individuals who received Digital Literacy training and those who received other types of training, $\chi^2(1) = 5.396$, p =.020. The probabilities of finding a job for those who attended Digital Literacy training (n = 192) and those who did not (n = 170) were 67% and 55%, respectively. Thus, Hypotheses 4 was supported. See Table 4.4 for results.

Table 4.4

Logistic Regression for Digital Literacy Training on Placement

| | | | | | 95% CI for Odds Ratio | |
Predictor	*B*	*SE*	$\Delta\chi^2_{removal}$	Odds Ratio	Lower	Upper
Constant	.717	.1537	--	--	--	--
Digital Literacy	.504	.2178	- 5.396*	.604	.393	.924

Notes: * $p < .05$, Model $\chi^2 = 5.396$, df = 1, n = 362, $R^2_L = 0.011$, Initial -2 Log Likelihood (-2LL) = 482.168, Model -2 LL with predictors = 476.772.

<u>Hypothesis 5</u>

In hypothesis 5, we evaluated Vocational Skills training on placement rates. There was a significant difference in placement rates for individuals who received Vocational Skills training and those who received other types of training, $\chi 2(1) = 5.636$, p =.018. The probabilities of finding a job for those who attended Vocational Skills training (N = 98) and those who did not (N = 264) were 71% and 58%, respectively. Thus, Hypotheses 5 was supported. See Table 4.5 for results.

Table 4.5

Logistic Regression for Vocational Skills Training on Placement

					95% CI for Odds Ratio	
Predictor	*B*	*SE*	$\Delta\chi^2_{removal}$	Odds Ratio	Lower	Upper
Constant	.916	.2236	--	--	--	--
Vocational Skills	.595	.2560	-5.636	.551	.330	.903

Notes: * $p < .05$, Model $\chi^2 = 5.636$, df = 1, n = 362, $R^2_L = 0.012$, Initial -2 Log Likelihood (-2LL) = 482.168, Model -2 LL with predictors = 476.532

Hypotheses 6

Hypotheses 3-5 were only able to compare placement rates for those who attended a given type of training versus those who attended other types of training; however, clients may have attended multiple types of training. It may have been the case that attending multiple types of training resulted in higher placement rates, as suggested by Hypothesis 6. In evaluating Hypothesis 6 we tested the impact of attending multiple types of training for those with disabilities. A variable was created by adding the number of trainings from Job Readiness, Digital Literacy, and Vocational Skills leaving clients with a score of 1-3. In our previous analyses, there were 362 clients with disabilities who received job training or services; however, only 277 clients attended a type of training of interest and are included in the remaining analyses. In this analysis we are only looking for a positive relationship between the number of trainings and placement; however, in a follow-up analysis, we will control for the type of training as well as the number of trainings.

The omnibus test for the Model 1 was significant, $\chi^2(2) = 12.531$, p =.002. The probability of finding a job for those who attended one, two, or three trainings was 48%, 69%, and 72%. Using the LSD method, we conducted pairwise comparisons. There was a significant difference between clients who attended one training versus clients who attended two trainings (p = .003, mean difference = .20) and three trainings (p = .001, mean difference = .24). There was no difference between clients who attended two trainings and clients who attended three trainings (p = .640, mean difference = .03). See Table 4.7 for results.

Hypothesis 6b: Training in Sequential Order for Clients with Disabilities

It was determined by Goodwill industries that clients who attended multiple trainings usually do so in a specific sequence: Job Readiness, Digital Literacy, and then Vocational Skills. With this knowledge, we created a factor coded variable with 1 = Job Readiness only, 2 = Job Readiness + Digital Literacy, and 3 = Job Readiness + Digital Literacy + Vocational Skills. It is important to note that about 1/3 of clients did not follow this sequence of training, and were not included in this analysis.

The omnibus test for this model was significant, $\chi^2(2) = 9.594$, p =.008. The probability of finding a job for those who attended Job Readiness training only (n = 68) was 49% compared to those who attended Job Readiness + Digital Literacy training only (n=88) at 68%, and those who attended all three types of training (n = 75) at 72%. Using an LSD test, we conducted pairwise comparisons between the varying number of trainings. There was a significant difference between those who attended Job Readiness training only and those who attended both Job Readiness + Digital Literacy training only,

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(p = .012, mean difference = .20). There was also a significant difference between those who attended Job Readiness training only and those who attended all three types of training, (p = .003, mean difference = .23). There was no significant difference between those who attended Job Readiness + Digital Literacy training and those who attended all three types of training, (p = .595, mean difference = .04). Hypothesis 6b was supported.

Exploratory Analyses

Interaction between Disability Status and the Sequential Order of Training

In hypothesis 1, we found a significant difference on job placement between those who had disabilities and those who did not. In an exploratory analysis of H6, we found that the sequential order of training was also a significant predictor of job placement for people with disabilities. In this model we entered disability status (disabled/nondisabled), the sequential order of training (Job Readiness, Job Readiness + Digital Literacy, and Job Readiness + Digital Literacy + Vocational Skills), and the interaction of these variables. In this way, we can control for multicolinearity and more accurately identify predictors of job placement.

The ombnibus test for Model 3 was significant, $\chi 2(5) = 16.645$, p =.005. Disability status remained a significant predictor of job placement when other variables (sequential type of training * disability status) were entered in the model, $\chi 2(1) = 4.246$, p =.039. The placement rate for those with disabilities was 63% compared to 70% for those without disabilities. Interestingly, the sequential level of training was not significant in this model, $\chi 2(2) = 4.396$, p =.111; it was fully moderated by the interaction between disability status (disabled versus non disabled) and the level of

training, $\chi2(2) = 12.382$, p =.002. For people with disabilities, as the number of trainings

increased, job placement increased. The most extreme increase was between Job

Readiness only and Job Readiness +Digital Literacy only, increasing placement rates

from 49% to 68%. This was not the pattern for those without disabilities. Their placement

rates were consistent across the number of trainings they attended. See Table 4.6 for the

mean probabilities of each cell.

Table 4.6

Probability of Placement by Disability Status and Sequence of Trainings

Disability Status	Training Sequence	Probability
No Disability	JR	.73
	JR + DL	.68
	JR + DL + Voc	.70
Disability	JR	.48
	JR + DL	.69
	JR + DL + Voc	.72
Total	JR	.62
	JR + DL	.68
	JR + DL + Voc	.71

Table 4.7

Likelihood Ratio Chi-Square for Models 1-4

	Model 1	Model 2	Model 3	Model 4
Model χ^2	12.531*	9.594*	16.645*	19.667*
Disability	-	-	4.246*	-
Disability Type	-	-	-	4.244
Training	12.531*	-	-	9.372*
Training (Seq. Order)	-	9.594*	4.396	-
Interaction	-	-	12.382*	5.032

Models 1, 2 , & 4 include clients with disabilities, Model 3 includes all clients. Model 1 (N = 277); Model 2 (N = 231); Model 3 (N = 1934); Model 4 (N = 240)

Interaction between Disability Type and the Number of Trainings

In hypothesis 2, there was not a main effect for the type of disability on placement. However, we thought it possible for disability type to interact with the number of trainings a client attended. Thus, we created a model including disability type, the number of trainings attended, and the interaction between the variables. Given our restrictions in sample size, we could only test two models of disability. First we tested our two-category model for differences between mental and physical disabilities and the number of trainings they attended. The omnibus test for the model was not significant, $\chi^2(5) = 5.727$, p =.334.

Next we tested our proposed 5-factor model, but excluded sensory disabilities because of the small sample size. All remaining disability types had a sample size of 40 or greater. The omnibus test for the model was significant, $\chi^2(11) = 19.667$, p =.050. There was a main effect for the number of trainings, $\chi^2(2) = 9.372$, p =.009. Similarly to

disability as a whole, as training increased from one to three, the likelihood of job placement also increased from 47%, 68%, and 70%, respectively. Nonetheless, the type of disability was not significant, $\chi^2(3) = 4.244$, p =.236, nor was the interaction between the number of trainings and disability type, $\chi^2(6) = 5.032$, p =.540. See Table 4.8 for the mean probability of each cell.

Table 4.8

Probability of Placement by Disability Status and Number of Trainings

Training	Disability Type	Probability
1	Physical	.54
	Emotional	.54
	Mental	.50
	Other	.32
2	Physical	.65
	Emotional	.82
	Mental	.50
	Other	.69
3	Physical	.76
	Emotional	.72
	Mental	.54
	Other	.76

CHAPTER FOUR

DISCUSSION

The purpose of this study was to investigate the impact of disability status, disability type, and training on placement rates for clients attending Goodwill job placement services. Clients with disabilities who received job placement services from Goodwill Industries were placed at a rate of 62%. This is in stark contrast to the national workforce participation rate of 17.6% for individuals with disabilities (Bureau of Labor Statistics, 2013). Individuals who did not have a disability, but were otherwise disadvantaged, including ex-offenders, high school dropouts, and welfare recipients, had a placement rate of 71%. Labor Statistics show that these disadvantaged groups are among the most vulnerable for facing unemployment. Nonetheless, after receiving job placement services from Goodwill, they were employed at a rate greater than the national workforce participation rate of 63.2% (Bureau of Labor Statistics, 2013). These numbers are encouraging and provide initial support for the effectiveness of the job services and training programs offered at Goodwill Industries. However, a full investigation of the impact on training would require a non-trained equivalent control group, which was not available in the current study.

Analyses Involving the Impact of Disability Status and Disability Type on Placement

Hypothesis 1 demonstrated that having a disability was a risk factor in finding employment in the sample at Goodwill. The likelihood of finding employment was 62% for those with disabilities, compared to those without disabilities at 71%. One explanation is that disabled individuals have lower skill levels and therefore subpar performance

compared to their able-bodied counterparts. However, studies show that individuals with disabilities offer competitive performance and have higher ratings than the general workforce in punctuality, attendance, and the ability to accept constructive criticism (Ren, Paetzold, and Colella, 2008; Reisman and Reisman, 1993). In addition, clients with disabilities in our sample were more educated than clients without disabilities.

Another explanation may be that the stigma attached to having a disability is being used as a basis for discriminatory behavior (Chan, Strauser, Gervey, & Lee, 2010; Brostrand, 2006). Studies gauging employer reactions to disabled applicants have found support for this theory (Kosyluk, Corrigan & Landis, 2014; Kaye, Jans, and Jones, 2011). Again, since this was not a laboratory study that manipulated disability status and we did not have individualized data allowing us to describe potential employers' stereotypes, we cannot say that these stereotypes caused the lower employment rates of the disabled. We can say that the depressed employment rates of disabled individuals in this study are consistent with field data from literature in vocational rehabilitation, education, and from lab studies in I/O psychology.

<u>Hypothesis 2</u>

Hypothesis 2 focused only on individuals who had disabilities, and comparisons were made between disability categories using four typologies of disabilities. Our results revealed that the type of disability did not significantly improve or decrease the likelihood of finding employment. Nonetheless, interesting trends emerged and will be discussed in this section.

The first typology compared physical versus mental disabilities and both groups had sample sizes greater than 100. Nonetheless, we did not find differences in placement rates. When comparing physical (physical, blindness, deafness) to mental (learning, developmental, neurological, emotional) disabilities, the placement rates were 65% and 63%, respectively. Dutta and colleagues (2008) found similar results in placement rates between 10,000 Vocational Rehabilitation clients with physical and mental disabilities.

While Dutta found similar results in the field regarding the lack of differences between mentally and physically disabled individuals, this finding was unexpected given laboratory research which has consistently reported that job applicants with mental disabilities are viewed more negatively and have lower performance expectations than those with physical disabilities (Paetzold, 2005, Ren, Paetzold, and Colella, 2008; Thornicroft, 2006). It may be the case that these disability differences are more salient in laboratory manipulations that focus the evaluator's attention on the disability to the exclusion of other characteristics and qualifications. It may also be the case that those employers who partner with Goodwill to hire disabled individuals are more supportive of their employment than typical employers, regardless of whether the individual is physically or mentally disabled. More research is needed to understand how the negative stigma towards mental disabilities found in laboratory research affects hiring decisions. As noted, this type of investigation is extremely difficult to conduct given ADA-based legal restrictions on gaining information on disability status and privacy stipulations regarding the use and release of this information. .

Next we analyzed the three-category system, which is consistent with the

Vocational Rehabilitation typology including sensory (blindness and deafness), physical,

and mental disabilities. Clients with sensory disabilities had the highest placement rates

(68%), followed by clients with physical disabilities (64%), and then those with mental

disabilities (63%). However, these differences did not reach statistical significance.

This hierarchy of sensory, physical, and mental disabilities is a consistent trend in

Vocational Rehabilitation literature (e.g., Dutta et al, 2008; Jang et al., 2014). While

findings showed no significance between disability types, there were only 19 individuals

in the sensory disability category. Studies that found significance had samples greater

than 15,000 (e.g., Dutta et al, 2008; Jang et al., 2014). Employment data suggests that, in

general, there is a trend for those with sensory (hearing and visual) impairments to be at

an advantage in hiring as compared to those with physical and mentally disabled

individuals. In the US, those with hearing and visual impairments are employed at a rate

of 55% and 41.7%, far above the average employment rate for the disabled population,

27% (Disability Compendium, 2014; Office of Disability Employment Commission,

2010). Thus, it may be the case that a larger sample size of those with sensory

disabilities and a more representative range of employers would have revealed a pattern

consistent with the long-standing advantage of sensory disabilities reported in national

level employment data.

The next comparison in the classification schemes of disability types was drawn

from the original Goodwill classification system. In this analysis, no differences were

found when disability was broken into eight categories. Again, we believe the fact that

four of the disability categories had less than 15 clients may have led to decreased power to detect any meaningful differences between these narrow definitions of disabilities. Nonetheless interesting trends emerged. Those with hearing disabilities had the highest placement rates (75%) followed by blindness (67%). Reasoning for this finding is consistent with the above discussion.

With this typology, we were able to parse out learning, developmental, neurological, and emotional disabilities previously combined in the mental category. Those with learning and developmental disabilities had the lowest placement rates in the "mental" category of 56% and 58%, respectively. These two types of disabilities affect one's ability to learn and retain new information. It is logical to assume that these conditions would be highly debilitating in a job training setting. People with neurological disabilities were placed at a rate consistent with those with physical disabilities at 64%. This is not surprising as neurological disabilities such as a stroke, cerebral palsy, and multiple sclerosis often produce physical symptoms.

Finally, we analyzed the category system that we proposed including sensory, physical, mental, emotional, and other disabilities. The most important contribution of this category system was the comparison between emotional disabilities and the combined average of mental disabilities (neurological, developmental, and learning disabilities). Mental disabilities had the lowest placement rate of any disability type (58%) compared to emotional disabilities who had the second highest placement rate (67%). This model provides preliminary support that clients with emotional and mental disabilities should not be grouped together in a job training setting.

Perhaps the most interesting finding in the current study was that those classified by the Goodwill system with emotional disabilities had higher placement rates (67%) than clients with physical disabilities (64%) and those with all other disabilities previously combined in the mental category. This is contrary to our original hypothesis 2b. Previous research stated that people with emotional disabilities are seen as less ideal employees and more as potentially difficult, even dangerous, individuals, despite evidence to the contrary (e.g., Corrigan, 2005; Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999). Other studies show how this stigmatization translates into discriminatory behavior in the hiring process (Thornicroft, 2006; Ren, Paetzold, and Colella, 2008). Nonetheless, these negative attitudes did not translate into lower placement ratios for people with emotional disabilities.

Thus, this finding that those with emotional disabilities are not at a greater disadvantage than those with physical disabilities in the hiring process in this particular setting is in contrast with findings with lab and field research. Again, the nature of the employers who partner with Goodwill is an important factor. Many companies who are likely to discriminate against disabled individuals would not proactively seek out or partner with Goodwill, thus this sample of employers is likely to hold more positive attitudes toward hiring the disabled than those in the national norms.

In addition, clients with emotional disabilities can more easily conceal their disability as compared to someone with an ambulatory disability. In the interview process, employers are not allowed to ask about an applicant's health status and applicants are not required to disclose this information. Unless an individual chooses to

reveal their mental disability, it would seem logical that it would be less likely to lead to negative stigmatizing and reviews. This puts the disabled individual in a double-bind. To reveal the disability may lead to stigmatization but if one does not reveal it, the employer does not need to provide reasonable accommodation in any form.

In summary, national level data from the field and laboratory experiments suggests that individuals with certain types of disabilities such as mental disabilities may indeed find fewer employment opportunities than those with other less stigmatized disabilities. Again, we cannot ascertain whether this is due to true performance differences among those with emotional disabilities or due to the increased stigma associated with this type of disability found in lab research. However, the finding shows that those with mental disabilities benefit from training as much as those with other disabilities when working with Goodwill and shows that such employment programs hold promise for this particularly challenged group of disabled individuals.

With further development, this category system may provide applied benefits to employers. As noted earlier, employers may have extreme views about the nature of disabilities and the costs of accommodations needed to support individuals with disabilities. Part of the issue is that the sheer range and type of disabilities covered by the ADA is likely overwhelming to employers. Currently over 900 disabilities are covered (ADAAA, 2008). A more parsimonious categorization system is a first step in helping employers understand the nature of disabilities and reasonable accommodations for the categories.

Analyses Involving the Impact of Training on Placement

<u>Hypothesis 3-5</u>

Our next goal was to determine which types of training were the most beneficial for people with disabilities. Because we did not have a control group, we cannot draw conclusions with certainty, we can only show consistent trends. Consistent with previous research (e.g., Dutta et al., 2008), Job Readiness training was less effective than other trainings in regards to job placement. Nonetheless, the relationship and social skills learned in Job Readiness training are highly important once a client has secured a job as they are related to building positive work relationships and increased self-efficacy on the job (Argentzell, Leufstadius & Eklund, 2014; Bloeming-Wolbrink, Janssen, Ruijssenaars, Menke & Riksen-Walraven, 2015). Other research supports that positive interpersonal communication skills enhance teamwork, promote a positive workplace culture, thus yielding higher performance for an organization.

In hypothesis 4, we found that attending Digital Literacy training increased a client's chances for finding employment in comparison to other types of training. In this training clients are introduced to Microsoft Word, Windows operating system, and Internet Explorer. Clients create an email, learn to navigate the online job search process, and build a professional resume. All of these tools can dramatically increase the marketability of a client and the accessibility to potential employers. This finding is consistent with Dutta and colleagues (2008) who found a significant relationship between computer training and job placement.

Hypothesis 5 showed that clients who attended vocational skills training had the highest placement rates of any type of training. This type of training prepares clients to enter a variety of careers that rely on a specific skill set such as a document archivist, janitor, or nurse assistant. In addition, clients often gain national certificates (e.g., OSHA-forklift operator or CPR certification), which verify their skill competence.

Alternatively, it is possible that the differences between training types are confounded by a selection bias. Job Readiness is usually the first stage in the training sequence and the overall ability level of clients with disabilities is lower. Clients who cannot successfully complete this training are very unlikely to advance to more technical training. As evidence, 246 clients with disabilities attended Job Readiness training, 192 attended Digital Literacy, and 98 attended Vocational Skills training. At the same time, the selection bias may artificially inflate the effect of Vocational Skills training. Most often, vocational skills training is attended last in the training process. At this point in the process, clients have most likely attended both Job Readiness and Digital Literacy training and completed them successfully. Moreover, clients most likely have higher capabilities and are less impaired by their disability.

Hypothesis 6

Next we examined the impact of attending multiple types of training for those with disabilities. Our findings showed that as the number of trainings increased, placement rates increased, providing support for the effectiveness of Goodwill's training programs. Our findings are consistent with Vocational Rehabilitation literature and SIPP (Survey of Income and Program Participation) data which support the positive returns for

training and education for disabled individuals (e.g., Hotchkiss, 2003; Dutta et al., 2008; Hanophy, 2012; Hollenbeck & Kimmel, 2001; OCED, 2004). This pattern is also consistent with human capital theory that states that as people acquire more job relevant skills, they increase their employment value, which leads to increased job placement rates (Becker, 1964). Perhaps the increased value from gaining job skills is trumping the negative stigma commonly attached to having a disability. In this way, training for people with disabilities becomes even more crucial to employment success (Hotchkiss; 2003).

Hypothesis 6b

Two-thirds of clients who attended multiple trainings did so in a specific order of (1) Job Readiness, (2) Job Readiness + Digital Literacy, and (3) Job Readiness + Digital Literacy + Vocational Skills. In an exploratory analysis, we were able to understand the change in hiring ratios for each additional training attended. Similar to hypothesis 6, as clients acquired additional skills, their placement rates increased; however this increase was not consistent between trainings. Clients who attended Job Readiness training had a hiring ratio of 48%; clients who attended Digital Literacy training in addition to Job Readiness training were employed at 68%, and clients who attended all three types of training were placed at a rate of 72%. As discussed previously, Digital Literacy requires more advanced cognitive skills (e.g., sequential reasoning, information processing) as well as dexterity (e.g., using a mouse, typing) than Job Readiness training. It is possible that the severity of a client's disability served as a confound for the relationship between training and job placement. It is interesting that the increase in placement between attending Digital Literacy and Vocational Skills was minimal (4%). It is logical to

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assume that the ability level needed to successfully complete Digital Literacy training is similar to that needed to complete Vocational Skills training. In addition, clients who have completed both Job Readiness and Digital Literacy training have proven that they can show up on time, follow directions, and cooperate with others in a classroom setting.

Interaction: Disability Status and Training

Previously, we discussed the positive relationship between the number of trainings and job placement for those with disabilities; we wanted to know if people without disabilities followed this same pattern. Thus, we conducted several exploratory analyses to further investigate the relationships between disability status, the sequential order of training, and the interaction between the variables. Our findings showed that as the number of trainings increased, the likelihood of finding employment increased; however, this pattern was only true for those with disabilities. Counter to human capital theory, training had no effect on placement rates for those without disabilities. Looking more closely at the graphical representation of the interaction in Figure 2, we can see that the largest disparity in hiring ratios appears in Job Readiness training. Clients with disabilities were employed at 48% compared to 68% for those without disabilities. After attending two or more types of trainings, those with disabilities were actually placed at a higher rate than those without disabilities.

Figure 5.1

Interaction of the Sequential Order of Training and Disability Status on Job Placement
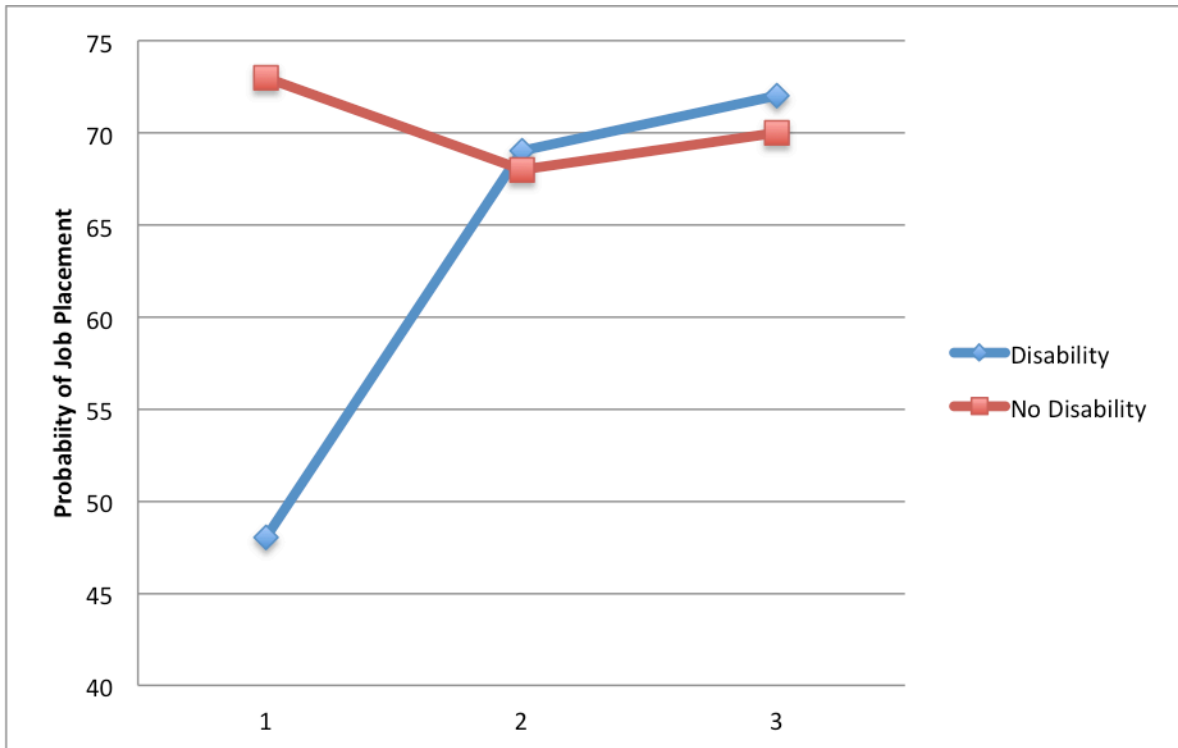
One explanation is that training provides greater benefit for clients with disabilities because of the negative stereotypes attached to disability status. People with disabilities are often viewed as unreliable and unintelligent. Completing training may partially mitigate this belief, putting someone with a disability on an equal playing field as their able-bodied counterparts in the hiring process. Baldwin and Johnson (2000) support this theory, stating that after completing job skills training, the wages of individuals with disabilities increased at a greater rate than those without disabilities. They found that individuals with highly stigmatized disabilities (e.g., bipolar disorder, AIDS) achieved the greatest rate of return on wage.

There are several other plausible explanations for these findings. Perhaps clients without disabilities responded differently to Job Readiness training than clients with disabilities. This is a one-day lecture style class in which large quantities of information are disseminated. It may be more difficult for people with disabilities to retain the material. In a future research section, we suggest administering a post-training assessment to measure this. Alternatively, it is possible that training had little no effect on job placement and that a confounding variable inflated the impact of training on job placement for people with disabilities. Perhaps the severity of one's disability, rather than disability status, is the driving factor in finding employment. In the next section we discuss the limitations of our study.

Limitations and Considerations

The current study utilized field data from Goodwill Industries and was not experimental in nature. This is both the greatest strength and greatest limitation to the study. In lab experiments, data is collected explicitly for scientific purposes under controlled conditions. Our data was a record of naturally occurring events that happened within the organization. Thus the nature of field data comes with several limitations.

Our first limitation is that we lack of a control group. Goodwill is a training agency, and everyone who received job placement services also received training. Ideally, we could randomly assign an equal number of clients (n >300) to one of four training conditions: (1) No training, (2) Job Readiness, (3) Digital Literacy, or (4) Vocational Skills training. In this way we would have a baseline in which to compare the

three training types rather than comparing the training types to one another. In addition, we could prevent multicolinearity issues caused by clients attending multiple trainings. However, given the restraints that occurred within the context of the organization, this was not possible. In addition, to strengthen the argument for the efficacy of training, Goodwill could administer a series of post-training evaluation to be correlated with job placement data.

Another limitation is that we are unsure if clients' unemployment is voluntary or involuntary. In other words, we do not know if clients who were marked as not having job placement were truly unable to find work or if they opted out of working for other reasons (e.g., health, family reasons, loss of benefits). To mitigate this issue, the career counselor could administer a follow-up survey assessing the specific reasons for unemployment.

Another limitation is that our sample may not generalize to all people with disabilities. In general, Goodwill serves individuals with low socioeconomic status who are less educated and more impoverished than the general population. In addition, clients at Goodwill are usually placed in minimum wage positions that require minimum skills.

The final limitation of our study was the low sample size in some of the disability categories. There were 362 individuals with disabilities who received job placement services. This sample was sufficient to detect differences between those who had disabilities and their able-bodied counterparts. However, our analyses testing differences between specific types of disabilities may have been underpowered. In our classification systems, we divided clients into multiple disability categories, which resulted in low cell

means. In the original Goodwill classification system utilizing eight categories, there were less than 15 clients in the categories of blindness, deafness, neurological, and developmental disabilities. Although our analyses were not significant, there was a large disparity in placement rates across disability categories. For instance, the probability of placement for those with deafness was 75% compared to those with learning disabilities at 56% and developmental disabilities at 58%. The low sample size and the large mean differences between disability categories builds support for additional research.

Future Research and Practical Implications

As stated in the literature review, disability research is a relatively new area of interest in industrial psychology. The literature that does exist predominately examines stereotypes of the disabled as a homogenous group rather than examining differences between disability types. Thus, a major focus of our study was to identify meaningful differences between disability types. However, given the small sample sizes between some of our disability categories, we were unable to detect differences. Nonetheless, we feel that this area of research deserves more attention.

Currently, there is not a classification system of disability that is comprehensive, yet parsimonious. As discussed in the literature review, medical models group disability based on symptoms of the disease and social models treat disability as a unanimously disadvantaged group. Neither of these models fully capture the experience of disabled individuals in the workplace. In a future study, we suggest measuring employer's perceptions of similarity between disability types. This could be done using Q-

Methodology, a form of factor analysis used in social sciences to group subjective viewpoints. Traditional factor analysis, termed R, involves finding correlations between variables (e.g., training and job placement). However, the Q statistic looks for correlations between subjects across a sample of variables. This method may lead to a more intuitive classification of disability. This intuitive system could aid the development of reasonable accommodations in industry. Current classification systems are cumbersome and the default for many employers is a generic accommodation which does not lend itself to optimal performance for the disabled or an enriched understanding of the disability for the employer. It is our hope that the system developed in the current study is a step toward the goal of a usable, pragmatic and informative means of understanding the challenges faced by disabled individuals.

In addition, we recommend employing utility analysis to determine training efficacy. In human resource management and I/O psychology, utility analysis is used to calculate the impact of a training intervention and job performance. This formula includes the change in performance measurements taken before and after an employee attends training or the performance differences between trained and untrained groups. Also included is the standard deviation of performance for a particular job (reported in dollar amount) as well as the validity coefficient of the specific training intervention (Carr, 1988).

Next, in each of our analyses, there was a large percentage of unexplained variance, suggesting that there were variables unaccounted for. In future studies, we suggest controlling for several confounding variables. As mentioned in previous sections,

the severity of one's disability may affect an individual's ability to find employment. We would expect that the more limiting a disability, the less likely an individual would find meaningful employment. Jensen and colleagues (2005) suggest measuring severity using a 5-point Likert scale. In addition, we suggest measuring clients' job search self-efficacy and motivation. Previous research shows that clients who view themselves as capable and have high levels of motivation are more likely to find employment (Liu, Wang, Liao & Shi, 2014). Perhaps these variables could serve as moderator between disability status and job placement.

Finally, in studies utilizing large samples (e.g., Vocational Rehabilitation and government surveys), we suggest utilizing more advanced statistical techniques to predict employment outcomes. Specifically, we suggest conducting a cross-classified, multi-level, logistic model. In this way, researchers could better detect differences between disability type within a training type and at the same time, reduce the effect of multicolinearity. Our sample did not warrant this analysis given the small number of clients in some disability categories; however, it has been effective in educational research to predict the achievement of students within classrooms.

Conclusion

The current study has both theoretical and applied implications for disability research. Although differences in sample sizes among disability categories precluded an examination of the impact of specific disabilities on job placement, the comparison and contrast of different types of disability classification schemes should contribute to

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ongoing attempts to develop functional, practical categorization systems that can be used in academia and in applied settings as well.

The finding that training enhanced placement for disabled individuals was significant as well. As noted in earlier discussion, stereotypes regarding the disabled are negative with respect to their job skills, without exception. While society may regard certain types of disabilities with compassion and admire some of those who struggle on a daily basis, this does not imply a willingness to hire them. In reality, continued employment is dependent on support from supervisors and coworkers, and this in turn depends on considered and informed attitudes and behavior regarding their capabilities and limitations (Corbiere, Villoti, Lecomte, Bond, Lesage & Goldner, 2014; Lanctot, Bergeron-Brossad, Sanquirgo & Corbiere, 2013).

The finding that training helps disabled individuals find employment is consistent with other field studies in similar settings (Henry, Haskin & Zhang, 2014). These findings are encouraging for Goodwill as well as other training agencies, and should facilitate further investment in such ventures. While the findings of this study have significant implications for the efficacy of training disabled individuals, perhaps the most important outcome of employment is interpersonal as well as economic. Training and placement in meaningful work has a significant impact on the self-esteem and the quality of life for those who face disabilities on a daily basis (Michon, van Busschbach, Stant, van Vogt and Kroon, 2014). Training, thus, is a means to inform society and organizations regarding the capabilities of the disabled, and a way to facilitate a richer and more satisfying life for the disabled.

APPENDIX

Work Skills Training

Forklift: This three-four hour course includes classroom instruction with OSHA materials and hands-on, on-equipment training led by a certified trainer.

Security Guard: Participants learn legal powers and limitations of a security guard/officer, emergency procedures, and general duties in a one-day class led by a certified trainer. Upon completion, participants are ready to apply for a license as an unarmed security officer issued by the Tennessee Department of Commerce and Insurance.

Custodial Program: This four-week class is based on the nationally-accredited Cleaning Management Institute (CMI) curriculum and includes both classroom and hands-on training led by a CMI-certified trainer.

HealthCare Initiatives: This four-week class provides participants with an overview of health care careers and an introduction of basic medical care education and terminology. Upon completion, participants will have the skills for entry-level jobs in the health care industry and the foundation to begin training in specific health care occupations.

Document Archiving: In this four week class students learn to prepare and scan office documents.

Call Center Training: This training is an on-the-job program. Students learn the skills to manage and respond to calls from customers. Upon completion of the paid, 6-week class,

graduates are proficient in other skills enabling them to make outbound calls and data entry associated with standard call center skills.

TRAC (Training in Retail Associate Certification): this class offers retail/customer service training. It is designed for entry-level workers, teaches job readiness, customer service, product knowledge, selling tips, merchandising, safety and security, cash handling and basic point-of-sale (POS) skills.

Transitional Services: Career Solutions offers a program for people with disabilities who may need more time to adapt into the world of work. For individuals with a documented physical, mental or emotional disability, the Transitional Employment program offers intensive job readiness services, during which participants learn skills needed to integrate into the world of work. Participants learn to work both independently and in a team environment and gain marketable skills.

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