SEE ME, NOT THE DISABILITY: EXAMINING EMPLOYER RESPONSES TO APPLICANTS WITH DISABILITIES

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ABSTRACT OF THE DISSERTATION

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People with disabilities have low employment levels, and previous research suggests that employer discrimination is a contributing factor. Following prior field experiments on labor market discrimination, evidence is presented from a correspondence study that submitted applications in response to 12,032 advertised software developer (high-skill) and data-entry clerk (low-skill) positions. One-quarter of the cover letters disclosed that the applicant has a spinal cord injury, one-quarter disclosed post-traumatic stress disorder (PTSD), one-quarter disclosed a hearing impairment, and one-quarter did not mention disability. The evidence did not show gaps by disability status in employer interest in both occupations. It suggests a leveling effect that technology may have on job opportunities for people with disabilities in some professions. Complementary lab experiments attempted to shed light on the socio-cognitive processes underlying hiring behavior by simulating staffing sessions in a controlled setting of 241 participants. Overall, the evidence suggests that a signaling system depicting an inclusion policy may ease aversion toward applicants with disabilities.

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To my beloved brother, Edward: I wish I could show you when you are lonely or in darkness the astonishing light of your own being.

To Mike Hood: Thank you for keeping me steady.

AUTHOR'S NOTE

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TABLE OF CONTENTS

INTRODUCTION

There is a growing recognition that people with disabilities are marginalized, and the disregard toward them is expected to increase as their population rises (World Health Organization/World Bank, 2011). In the U.S., approximately 19% of the population or 56.7 million people have disabilities (U.S. Census Bureau, 2016). People with disabilities also comprise a considerable segment of the world's populace (i.e., approximately 1.1 billion people or one-sixth of the global population) (Schur, Kruse, and Blanck, 2013; World Health Organization/World Bank, 2011). The present study investigated disability as it intersects with employment in the U.S. to determine if this group can readily establish economic, political, and social equality, despite the tradition of discrimination against them.

The employment disparities that are faced by people with disabilities affect their political, economic, and social wellbeing. For example, people with disabilities have low employment rates that contribute to their high poverty percentages (Stapleton and Burkhauser, 2003; Kaye, 2010, Schur, Kruse, and Blanck, 2013; Houtenville, Brucker, and Lauer, 2016; OECD, 2010, World Health Organization/World Bank, 2011). In fact, during 2014, only 34% of working-age individuals with disabilities were employed in the U.S., compared to 75% of those without disabilities (Houtenville et al., 2016). Although the passage of the Americans with Disabilities Act (ADA) supports their workforce participation, the gap in employment has apparently not narrowed (Stapleton and Burkhauser, 2003).

Moreover, the U.S. Bureau of Labor Statistics reported that, among workforce participants, the unemployment rate of people with disabilities (10.7%) was twice that of

those without disabilities (5.1%) (2015). In all educational attainment groups, the unemployment rate was also higher among people with disabilities than among their counterparts (BLS, 2015). Regarding voluntary unemployment, a considerable proportion of people with disabilities (about 8 in 10) were not workforce participants compared to people without disabilities (about 3 in 10). Evidently, people with disabilities do not greatly participate in the labor market, however, it is not entirely due to their indifference toward working.[1] In fact, recent evidence from the first U.S. field study on disability and employment found that discrimination was a key factor that helps explain the discrepancies above (Ameri et al., forthcoming).

Ameri and colleagues (forthcoming) submitted job applications from well-qualified, hypothetical applicants with and without disabilities, in response to 6,016 publicized accounting positions. The two disabilities included spinal cord injury and Asperger's Syndrome that should not limit productivity in accounting. The researchers discovered that applicants with disabilities were less likely to attract employer interest. This was especially true for experienced applicants with disabilities, which suggests that greater qualifications may not remove the labor market disadvantages associated with disability. Also, the disability gap was concentrated among small firms that were not covered by the Americans with Disabilities Act (ADA). The latter finding suggests lawful discrimination by small firms, and a positive effect of the ADA between medium and large sized firms who are covered by it.

Here, the study presents two field experiments that continued to explore whether

[1] The data on people with disabilities is part of the Current Population Survey (CPS). This is a monthly sample survey of roughly 60,000 households that provides statistics on employment and unemployment in the United States.

disability-based discrimination encountered in Ameri et al. (forthcoming) existed in other occupations and for people with other types of disabilities. The evidence is linked to social cognition theory to advance scholarly understanding of hiring behavior. In addition, laboratory experiments were administered to help explain the findings from Ameri et al. (forthcoming) and the present field experiments by directly testing social cognition concepts that may facilitate hiring behavior.

A review of the literature is provided in the next segment, followed by the methodology and data description, as well as the results, discussion, and conclusion.

LITERATURE REVIEW

"Labor should not be about creating monuments on hills or statues in parks. Labor's monuments and statues are when a young person can find a job, when a person with disability can get access to the ordinary life that others take for granted."

(Bill Shorten, January 20, 2014)

According to disability literature, employment levels among working age people with disabilities have remained extremely low (WHO/World Bank, 2011, Schur et al., 2013). It is likely due to the way "disability" is perceived. What exactly does the term "disability" mean to people without impairments? Furthermore, how has society made sense of the complex relationship between disability and mainstream society?

The stigma and prejudice toward people with disabilities are commonly explained by taste-based discrimination. This economic model describes a preference people have for others who are like themselves (Becker, 1957; Nowicki and Sandiesen, 2002; Yuker, 1988; Scior, 2011; Muzzatti, 2008; Westerholm, Radak, Keys, and Henry, 2006a, 2006b; Thompson, Fisher, Purcal, Deeming, and Sawrikar, 2011). Taste-based discrimination is supported by a body of work that has discovered (1) lower social acceptability ratings that were linked to reduced wages for people with disabilities (Baldwin and Johnson, 2006); (2) stereotypical attitudes of work colleagues and managers that can influence the workplace experiences of disabled employees (Stone and Colella, 1996; Colella, DeNisi, and Varma, 1998; Colella, 2001; Ren, Paetzold, and Colella, 2008; Marti and Blank, 2000); and (3) the adverse effects of disability on performance expectations and hiring outcomes (Ren et al., 2008). The literature has also found that employers often perceived workers with disabilities as less productive and costlier than other employees,

subsequently making employment decisions based on these impressions (Schur et al., 2013).

Statistical discrimination, a type of simple stereotyping, is an alternative economic model that further clarifies this complex relationship. It describes how employers exhibit disparate treatment toward target applicants by drawing from imperfect information about their group status (Phelps, 1972; Arrow, 1973; Aigner and Cain, 1977). According to the model, group averages are assigned to target applicants that incites discrimination (Bertrand and Duflo, 2016). For example, employers are inherently profit maximizers, so they scrutinize applicants during recruitment. However, when information is limited, applicants' group membership helps determine job-fitness instead (Bertrand and Duflo, 2016). Employers may believe that people with disabilities are less productive on average, therefore, disabled applicants are disqualified (Ameri et al., forthcoming).

Disability research has made significant advancements by using the economic-based models to rationalize labor market discrimination. However, to thoroughly identify *how* employers interpret job applicants with disabilities, social cognition theory was used in this study to help clarify employer hiring behavior. Social cognition describes how people view themselves and others (Fiske and Taylor, 1984). It is the exploration of one's psychological field that comprises cognition and motivation (Fiske and Taylor, 2013). Cognition and motivation are essential to calculating behavior. Cognition determines impression making and the direction of behavior. Motivation then predicts whether the behavior occurs at all, and if it does, to what degree (Fiske and Taylor, 2013).

Most employers are cognitive misers because of the limited capacity that humans possess to process information (Taylor, 1981). They may take shortcuts to understand applicants that lead to stereotyping. Employers might refer to schemas (i.e., cognitive arrangements that represent knowledge about a concept or type of stimulus, including its attributes and the relationship among those attributes) to help facilitate hiring behavior (Fiske and Taylor, 1984). It would allow employers to ignore certain traits that appear irrelevant to the abstract knowledge of target applicants. For example, when job applicants display multiple attributes (e.g., disabled, highly qualified, good-humored) the disability is likely to achieve primacy and outweigh other traits because employers may have a sensitivity to it (Colella, McKay, Daniels, and Signal, 2012).

The next segment expands on social cognition as it relates to hiring behavior. First, a brief history about disability is presented, along with three distinct representations of it that possibly shape employer perceptions of disability: the Medical, Social, and Universalist Models. The segment is then advanced by (1) a review of social cognition theory that is applied to disability and employment, (2) a review of prior empirical evidence, and (3) an introduction to the hypotheses.

1. Living with Disability: An Historical Oppression.

Historically, people with disabilities have endured considerable exclusion and mistreatment. In ancient Greece and Babylon, children born with disabilities were often condemned to isolation. Their disabilities apparently enraged the Gods. Living with an impairment made one a monster in an era where disability suggested evil (Schur et al., 2013; Braddock and Parish, 2001; Bogdan, 2009; Chemers, 2006). During the Middle

Ages, for example, Europeans viewed disabilities as the devil's doing or a type of wizardry. Some even perceived disabilities to be an act of punishment from a spiritual being (i.e., God) (Braddock and Parish, 2001; Schur et al., 2013). In some instances, disability was a "mark of disgrace" that condemned people to humiliation (Schur et al., 2013). For instance, "people of short stature were used as court jesters in ancient China, and in the palaces of pharaohs in ancient Egypt" (Schur et al., 2013, p: 1). The trend continued during the nineteenth and twentieth centuries where people with physical or intellectual disabilities worked as freak shows for-profit.

However, "disability" was not entirely seen as a source of fear or entertainment. It also provoked empathy and aid (Rimmerman, 2013). For example, in ancient Athens, food was offered to those with disabilities who were destitute and unable to work (Braddock and Parish, 2001; Schur et al., 2013). During the Middle Ages, asylums were constructed that housed, treated and educated the disabled (Braddock and Parish, 2001; Hudson, 2006; Schur, Kim, Han, Kruse, Adya, and Blanck, 2011). These institutions, however, further isolated people with disabilities from "normals," and were often overcrowded. In fact, throughout the eighteenth and nineteenth centuries, segregation provoked an abusive treatment toward people with disabilities who lived in shelters. During the late nineteenth century, the eugenics movement in the U.S. exaggerated that isolation (Trent, 2006; Rimmerman, 2013; Carey, 2009; Schur et al., 2013). Selective sterilization in the U.S. differentiated superior from inferior, and it was considered a crime for people with disabilities to wed and procreate (Carey, 2009). Moreover, people with disabilities were massacred by Nazi Germany during the Second World War (Trent, 2006; Rimmerman, 2013; Shakespeare, 2006; Carey, 2009; Schur et al., 2013).

People with disabilities have often been treated with disrespect, however, there are exceptions. While the more common responses of ridicule, fear, and hatred exhibited how society perceived disability, in rare instances, disabilities also dignified one's existence (Braddock and Parish, 2001; Schur et al., 2013). For example, dating back to Roman Greece, war heroes with disabilities were admired for their service, bravery, and sacrifice (Cohen, 2006). Comparably, the mentally impaired were sometimes viewed as spiritually-gifted. Among the Arab and Chinese communities, mental impairments were rumored to give someone a direct link to spiritual beings. In Korea, visual impairments signified the possession of mystical powers. Even in modern times, popular culture has exaggerated this belief through children's television programming. For example, in the animated series, "Avatar: The Last Airbender," Toph, a visually impaired adolescent is gifted the ability of sight by "Earthbending," the skill to sense vibrations through stone. On an earthen landscape, Toph can visualize her environment, and is considered a champion among her community. It is a rare illustration of accepting disability to the extent where one is extraordinary or in the case of the visually impaired, not quite blind.

Media portrayals of people with disabilities have significantly contributed to feelings of openness or aversion from able-bodied society (Schur et al., 2013). Regarding popular culture and its intersection with disability, evidence from a qualitative report found that people with disabilities "'have been scapegoated as scroungers'…and 'media mistreatment of disabled people is very, very negative…" (Schur et al., 2013, p: 216). The portrayals, however, are not all bleak because people with disabilities have become more visible than before.[2] In fact, people with disabilities are increasingly shown

[2] Disability is showcased in (1) Nike commercials of Oscar Pistorius, the South African Olympic sprint runner whose legs were amputated; (2) science fiction television that include Geordi La Forge from "Star

together with nondisabled peers (Schur et al., 2013). Their heightened exposure indicates that attitudes are changing. Society is seemingly more willing to accept disability as being part of the human experience (Schur et al., 2013). The movement toward inclusion is appropriately summarized by Sir Thomas William Shakespeare, a renowned English sociologist who said that:

> In the past when disabled people made creative work, whether it is dancers or comedians or writers. . . [non-disabled people would] say, "Isn't this marvelous, this cripple is doing something. We must be kind and say 'How lovely'." There is sort of a charitable response. I'd like to move towards. . . an evaluation which is. . . of the same rigor as we would apply to any other form of art.
>
> I would like to see more disabled people achieving the sort of success and quality in their work as non-disabled do. And I see no reason why they can't. And it is true that critics may have to sort of adjust and open their eyes a bit. But I think there is real potential for that.
>
> But I am very excited about that. . . I think that disabled people need to be seen as people with something to say, not just learning about the inequities but actually a contribution to the rest of the human experience. I think that's happened and I look forward to that happening, and happening more with more confidence, and with the best possible quality (Schur et al., 2013, p: 221).

For people with disabilities, openness extends beyond witnessing improvements in financial, economic, social, political, and psychological wellness. Shakespeare and others advocated that inclusion is the ability to achieve a fulfilling life without tolerating unnecessary barriers that are artificially driven (Schur et al., 2013).

The disability rights movement also helped remedy the historical oppression of people with disabilities by creating a more inclusive environment (Shapiro, 1994;

Trek: the Next Generation," who is a visually impaired cultural icon; (3) comic book literature that includes the "X-Men" who are referred to as "mutants" because of their disabilities, and "Daredevil," a blind hero who fights crime using infrared; (4) educational platforms that include TED, a not for profit media organization that hosted Maysoon Zayid, a successful comedian who lives with cerebral palsy and advocates disability in media; and (5) cinema, like "Finding Dory," whose lead character endeavors to find her family, despite her mental impairment.

Barnartt and Scotch, 2001; Schur et al., 2013). Susan Anspach (1979) made this assertion by describing that political engagement has enhanced the social participation of people with disabilities. She explained that:

> "The actions of the disabled, their militancy, and their reliance on social protest, demonstrate that they are independent rational beings, capable of self-determination and political action. These actions symbolically assault the prevailing common-sense (and sociological) imagery of passivity and victimization. . . Unlike other responses to stigma and disability, political activism creates an ideology which repudiates societal values and normative standards, and in so doing creates a viable self-conception for participants" (Anspach, 1979: p 773).

Anspach (1979) indicates that their political activism may incite the adoption of monumental legislation that resembles, for example, the Americans with Disabilities Act (United States); the Disability Discrimination Act (Australia and United Kingdom); the Law on the Protection of Disabled Persons (People's Republic of China); the Equal Rights for People with Disabilities Law (Israel); the 1998 Employment Equity Act (South Africa); and the UN Convention on the Rights of Persons with Disabilities that has gathered support from 186 nations, thus far (United Nations Enable, 2015; Schur et al., 2013).

However, popular culture and political activism has not entirely changed perceptions of disability. Equality demands more than passing laws and regulating those who are able-bodied (Cherney, 2009). Scholars, policymakers, and industry professionals must acknowledge that change also occurs by exposing the nature of human behavior through empirical evidence. Therefore, examining behavior through socio-cognitive psychology may help society tackle disability-based discrimination.

The following segment first describes three traditional interpretations of disability: the Medical, Social, and Universalist Models. They are publically shared

understandings of disability that shape social cognition and predict human behavior (Fiske and Taylor, 2013). The models of disability are followed by a review of social cognition concepts that are applied to employer hiring behavior.

2. Models of Disability.

Medical Model. The Medical Model defines disability as restrictions to bodily functioning (Hahn, 1985). It is the more traditional view of disability where impairments originate in individuals and have no link to the environment (Schur et al., 2013). The Medical Model embraces a perception of the "sick role" (Hahn, 1985). Social participation is constrained by impairments or medical conditions, therefore, people with disabilities must cure themselves first. For example, able-bodied society believes that a full range of physical, mental, and emotional skills are necessary to qualify for community membership (Hahn, 1985; Baldwin and Johnson, 2006; Schur et al., 2013; Shapiro, 1994). However, not all impairments are curable, so its social implications are damaging (Hahn, 1985). It assumes that people with disabilities are inferior, and ignores social norms and attitudes as a source of their segregation.

According to the model, social participation is not environment-based, but is centered on how people overcome disability through hard work, willpower, and optimism. The model is depicted through novels, newsprint, television, cinema, and other streams of popular culture in which people with disabilities courageously defeat hardship and self-doubt. This "triumph of the human spirit" thus abandons the idea that many issues faced by people with disabilities are a result of social factors that lead to

discrimination (Schur et al., 2013; Shapiro, 1994; Jones and Sloane, 2010; Mitra and Kruse, 2011a; Parish, Grinstein-Weiss, Yeong, Rose, and Rimmerman, 2010).

Social Model. It is argued that society can "disable" people with impairments. Unlike the medical view of disability, the Social Model weakens the idea of individual limitations and addresses limitations that are created by a disabling society (Barnes and Mercer, 2010). According to the Union of the Physically Impaired Against Segregation (UPIAS), "…it is society which disables physically impaired people" (quoted in Barnes and Mercer, 2010, p: 31; Schur et al., 2013, p: 9). Therefore, people with disabilities become socially oppressed (Barnes and Mercer, 2010).

According to the model, there is a distinction between the terms "impairment," which is an aspect of a person, and "disability," which is produced by society (Barnes, 2012; Blanck, 2004; Boyle, 1997; Schur et al., 2013). Here, disability is environment-based. That is, society is responsible for inventing disabilities by segregating, rejecting, and stigmatizing people with impairments. Examples include but are not limited to: (1) a wheelchair user who must enter a building from the rear entrance because the main entrance has steps and no ramp for convenient access; (2) someone with a visual impairment who must wait for assistance in crossing a street where accessible pedestrian signals do not exist; and (3) someone with muscular atrophy who must seek help to open doors that are not automated. It indicates that people with disabilities are forgotten citizens, and blames able-bodied society because socially-constructed barriers rather than individual impairments are seemingly oppressive (Barnes, 2000; Barnes, 2012).

However, critics argue that the Social Model is simplistic because it marginalizes the experiences of people with disabilities, and minimizes the importance of impairments

(Dowse, 2001; Shakespeare, 2006; Schur et al., 2013). While the environment can disable people, some impairments are in fact associated with physiological or psychological complications (i.e., pain and depression). That is, complete social accessibility will not erase some impairments (Scotch and Schriner, 1997). Therefore, this model ignores the effect that impairments may have on people biologically (Scotch and Schriner, 1997).

Even so, some advocates claim that by identifying society as the source of disability, barrier removal is more likely to occur (Shakespeare, 1993, 2006). The Social Model helps members of the disabled community by combatting oppression through political activism. For example, the disability rights movement has used the model to challenge traditional power relationships. Also, it shifts the damaging identity that disability has and depicts it positively (Shakespeare, 1993). Therefore, the Social Model can defeat patterns of discrimination by rejecting the inferior role, a socially inherited mark of shame that has denied people with disabilities the right to inclusion.

Universalist Model. Whereas the Social Model blames society for disabling people, the Universalist Model does not separate the population into people with and without disabilities. According to this model, disability is not fixed but fluid (Zola, 1989). The model describes that almost all people will experience disability at some point. People who are free of impairments are referred to as "temporary-able bodied" (Cherney, 2009). Disability is a universal occurrence of mortality that is inevitable. It is not an individual problem or a societal wrong, but a common experience of humanity that people experience at some point in life (Barnartt, 2010; Barnes and Mercer, 2010).

Zola (1989) argued that humanity exists on a spectrum of *ability* and *disability*, and the tipping point is firmly a matter of time. Under this framework, the equal distribution of resources and opportunities becomes more practical (Shakespeare, 2006). The built environment seems to have a direct causal effect on what Zola (1989) described as the "production of disability." Therefore, if society understands that the abilities of people are ever-changing, it might alter social and physical arrangements to be accommodating (Zola, 1989; Schur et al., 2013). However, creating an environment that is unbiased requires a similar change in human cognition as in architecture (Zola, 1989).

In sum, the models demonstrate that society interprets disability differently (Schur et al., 2013). Under the Social Model, for example, people with disabilities are oppressed by society, not their impairments. Alternatively, the Universalist Model describes that, eventually, everyone develops an impairment. It should be recognized, however, that the models are simple descriptions of complex mental processes that fail to offer a comprehensive portrayal of disability, especially as it relates to employment. Regarding labor market discrimination, there is no model that perfectly explains it. That is, the different conceptions that employers have toward disability can influence their hiring behavior. For example, under the Social Model, employers are more likely to target applicants with disabilities as an underrepresented minority group. Alternatively, employers using the Universalist Model would unlikely see applicants with disabilities as a distinct group, and more likely address their individual qualifications. However, none of the models present a complete picture. Instead of examining disability and employment through the models, it may be more valuable to associate them with social cognitive processes that are believed to motivate discrimination. The next segment

discusses social cognition, the study of how individuals make sense of others and themselves.

3. Social Cognition Theory Applied to Disability.

"When individuals with disabilities attempt to gain admittance to most organizational settings, it is as if a space ship lands in the corporate boardroom and little green men from Mars ask to be employed."

(Boyle, 1997, p: 263)

Prelude to Social Cognition. Various studies have found evidence of job-related discrimination toward people with disabilities that influence their wages, employment opportunities, and other outcomes (Baldwin and Jones, 2006; Schur, Kruse, Blasi, and Blanck, 2009; Rigg, 2005. Kaye, 2010; Mitra and Kruse, 2011a). For example, during 2010, 43% of people with disabilities reported that they encountered discrimination, with the most common forms including being paid poorly than similar workers with identical skills (18%), and being refused a job (17%) (Kessler/N.O.D., 2010). Also, from 1984 to 2004, between 22% and 32% of workers with disabilities reported that they encountered some form of job-related discrimination (N.O.D./Harris, 1998, 2004). Similar evidence found that workers with disabilities were more likely than others to cite obvious or subtle acts of discrimination (Snyder, Carmichael, Blackwell, Cleveland, and Thornton, 2010). Studies have also shown that people with disabilities earned lower wages after controlling for productive characteristics (Baldwin and Jones, 2006). Overall, these findings collectively indicate that lower social acceptability ratings toward people with disabilities may lead to discrimination.

International studies also found that people with disabilities encountered worse employment experiences than those without disabilities. For example, a study in the United Kingdom found that 19% of people with disabilities reported disparate treatment in the workplace, compared to 13% of people without disabilities. Workers with disabilities also reported in a Canadian study that employer perceptions of disability led to fewer work opportunities (Shier, Graham, and Jones, 2009). There are several U.S. based psychological studies who similarly found that supervisor and coworker attitudes influenced the workplace experiences of people with disabilities (Colella, 1996, 2001; Colella, et al., 1998; Marti and Blanck, 2000; Ren et al., 2008).

In a 2008 U.S. survey, evidence of discrimination was indicated by 34% of employers who cited "attitudes of customers," 32% who cited "discomfort and unfamiliarity," 20% who cited "attitudes of supervisors," and 29% who cited "attitudes of coworkers as challenges to hiring people with disabilities (Domzal et al., 2008, p: 13). Regarding coworkers, surveys found that 47% of employers were influenced by their attitudes toward disability (Kaye et al., 2011). The evidence is consistent with prior surveys that found 22% of employers cited stereotypes blocked the hiring of people with disabilities in their own business (Bruyère, 2000), and 20% of employers cited the greatest barrier to their employment was discrimination (Dixon et al., 2003). In total, the evidence on disability and employment strongly indicates that people with disabilities may encounter social barriers in the labor market. Although it is empirically established that negative attitudes shape their workplace experiences, there are no known studies that fully addressed the process of hiring behavior through social cognition and social psychology generally (Bertrand and Duflo, 2016).

It is argued here that hiring behavior is a function of an employer's social perception. Regarding employment, it is a commonly accepted and conservative understanding of who should be in the workplace and who should not (Fiske and Taylor, 2013; Manis, 1977; Zajonc, 1980). Employers are arguably "motivated tacticians" who use cognitive strategies to determine job-fitness (Fiske and Taylor, 2013). For instance, employers may either be objective about hiring qualified outgroup members who are not commonly part of the workforce, or they may demonstrate aversion to protect the status quo (Lengnick-Hall, Gaunt, and Kulkarni, 2008). In this study, social cognition helped clarify the steps of information processing, precisely the mental mechanisms that could facilitate aversion or openness toward applicants with disabilities (Todorov, Fiske, and Prentice, 2014). Therefore, social cognition is instrumental to deepening the scholarly understanding of disability-based discrimination at work.

This section links eight separate models in social cognition theory that are presumed to facilitate employer hiring behavior. Three of these (i.e., Priming, Stereotype Suppression and Rebound Effect) are an overlay of the entire sequence, whereas the remaining five theories (i.e., Impression Making, Information Processing, Role Congruity, Dual Processing, and Stereotype Content) offer more descriptive roles of the social perception of employers—mainly, (1) the automatic triggering of stereotypes that employers have toward applicants with disabilities, (2) the attempt to block stereotypic thoughts that motivate aversion, and (3) the post-suppression rebounding of stereotypes that return with a vengeance (Fiske and Taylor, 2013; Dijksterhuis, 2004; Macrae, Bodenhausen, Milne, and Jetten, 1994).

First, a description of social cognition is introduced, followed by an explanation of the processes by which stereotypes influence social cognition and hiring behavior. It includes Priming, Stereotype Suppression and Rebound Effect. The segment addresses (a) how employers encode sensory information and strengthen associations that are learned from it, (b) how employers actively inhibit stereotypic thoughts before they violate deliberate judgement and ensuing hiring behavior, and (c) how active suppression of unwanted thoughts likely fail.

Second, the concepts of Priming, Stereotype Suppression and Rebound Effect are enhanced by explanations of the exact mechanisms that produce employer impressions. It encompasses two pairs of ideas: (1) the Configural Model and Holistic approach that describes traits of a target applicant, and (2) the Algebraic Model and Elemental Approach that describes applicants in relation to their environment. Third, the theories on Impression Making are advanced by Information Processing theory that describes hiring behavior as motivated by consistency seeking. Fourth, Information Processing is complemented by Role Congruity that suggests applicants with disabilities will be negatively evaluated when their characteristics are perceived as misaligned with the typical social roles that are assigned to them. Fifth, the suppression of aversive behavior is described by Dual Processing that argues not every employer discriminates against applicants with disabilities. Some employers may objectively evaluate applicants with disabilities if they ignore the traits that correspond with stereotypes. Lastly, deliberate hiring behavior is countered by the prediction that consistency seeking is difficult to overcome among employers because of the prejudice they have toward certain disabilities. The Stereotype Content Model (SCM) properly describes this idea by

proposing that stereotypes possess two dimensions: (a) *warmth* that refers to a sense of trust toward disabled applicants, and (b) *competence* that refers to their perceived capability. Resolving the anxieties that correspond with perceived warmth and competence are expected to vary by the type of disability target individuals have. The constant state of resolving these anxieties is believed to deplete attentional resources that cause discrimination.

In sum, the models of social cognition may help explain the complex mental processes that are argued to drive employer hiring behavior. Although there is no lack of evidence to suggest that employer discrimination exists, studies that explore disability and employment have only assessed attitudes generally.[3] Disability research has not yet explored the processes that underlie employer hiring behavior. Research on disability has been commonly outcome oriented, not process oriented. For example, studies that addressed hiring behavior have empirically predicted outcomes (e.g., attitudes) from stimuli (e.g., disability) (Ali, Schur, and Blanck, 2011; Fiske and Taylor, 2013; Lengnick-Hall, Gaunt, & Kulkarni, 2008; Baldwin and Johnson, 2006). Among most field experiments that explored labor market discrimination, applicant portfolios were manipulated, and hiring behavior demonstrated the resulting attitudinal change by employers who encountered applicants with and without these manipulated characteristics (Bertrand and Mullainathan, 2004; Edelman, Luca, and Svirsky, 2016;

[3] See Lengnick-Hall, Gaunt, and Kullkarni, 2008; Schmelkin and Berkell, 1989; Yuker and Block, 1986; Kregel and Tomiyasu, 1994; Acemoglu and Angrist, 2000; Allbright, 2002; Christman and Slaten, 1991; Colella, 2001; Colella, DeNisi; Varma, 1998; Collignon, 1986; DeLeire, 2000; Gilbride, Stensrud, Ehlers, Evans, and Peterson, 2000; Green, Johnson, 1991; Hernandez, Keys, Balcazar, 2000; Koser, Matsuyama, and Kopelman, 1999; Kregel, Tomiyasu, 1994; Hernandez and Keys, 2000; Unger, 2000; Yelin and Trupin, 2003; Uppal, 2005; Solovieva, Dowler, and Wall, 2011; Schur, Nishii, Adya, Kruse, Bruyere, and Blanck, 2014; Schur, 2002a, 2002b, 2003, 2004; Sandler and Blanck, 2005; Schartz, Schartz, Hendricks, and Blanck, 2006.

Boo and Trako, 2009; Ravaud, Madiot, and Ville, 1992; Pager, 2003; Laham, Koval, and Alter, 2012; Baert, 2014; King and Ahmad, 2010; Bertrand and Duflo, 2016). Fiske and Taylor (2013) described this to be the case with most behaviorist research in that it does not fully explain the intervening process. Therefore, the approach of this study was to make associations between the concepts cited above as a way of explaining intermediate steps that are not explored in the disability literature.

Social Cognition Applied. "Social cognition captures a remarkable range of phenomena useful to individuals and to the human condition" (Fiske and Taylor, 2013, p: 1). It does not rely on any one theory, but instead uses several principles to study how people may organize their social world (Augoustinos and Walker, 1995; Fiske, 2012; Kunda, 1999; Bless, Fiedler, and Strack, 2004; Macrae and Bodenhausen, 2000; Ostrom, 1977; Taylor, 1981; Fiske and Taylor, 2013; Macrae and Miles, 2012; Moskowitz, 2005). Here, it helped examine how employers perceived applicants with disabilities in comparison to themselves as employers and their social group (Turner, 1991; Gerschick, 1998). However, it is important to note that social cognition is a simplified explanation of hiring behavior. Employers are complex creatures, so exploring their hiring behavior through socio-cognitive concepts is a tactic that simplifies its "inherent richness" (Fiske and Taylor, 2013, p: 20). Even so, studying disability and employment this way can help scholars more fully understand labor market discrimination.

The segment begins with Priming, a function of stereotyping that allows observers to classify targets based on their attributes. The concept of priming is followed by Stereotype Suppression, the idea that thoughts are consciously expelled from one's awareness, and Rebound Effect that posits the inevitable return of those unwanted

thoughts. Priming, Stereotype Suppression and Rebound Effect encapsulate a larger sequence mentioned above that is believed to occur when employers negotiate hiring decisions toward applicants with disabilities.

Priming. Priming is a technique of conditioning one's memory. In the context of social behavior, it is the storing and recollection of traits about a target that are salient and enduring (Leaderbrand, 2008). Traits refer to an abstract portrayal of groups that are based on certain behavioral characteristics—namely their mannerisms, expressions, reactions, and volition (Carr and Kingsbury, 1938). They are often learned by others who map a trait holder to a behavior (Dijksterhuis, Chartrand, and Aarts, 2007). Here, priming describes that employers who encounter applicants with disabilities may be marginally faster to associate disability with inferiority because the concepts are taught to be closely linked (Lengnick-Hall et al., 2008).

Evidence from Lengnick-Hall and colleagues (2008) supported this learned association as employers disregarded hiring applicants with disabilities largely because of the societal beliefs about them. One common concern was that "…people with disabilities don't have communication skills and wouldn't be able to problem-solve at a faster pace…" (Lengnick-Hall et al., 2008, p: 258). In addition, there was a fear that workers with disabilities could increase health care costs, thereby raising labor costs overall (Lengnick-Hall et al., 2008). The following quote expressed this point plainly:

> "the only one that I can think of and I have not experienced this (so this is not fact basis, this is just surmising) would be what we are all experiencing—medical costs skyrocketing . . . does an individual (with a disability) bring . . . an inherently higher medical cost?" (Lengnick-Hall et al., 2008, p: 259)

Apparently, the inference was not factually derived, but it was activated because disability gave rise to stereotyping (Bargh, 2007; Brewer, 1988; Fiske and Neuberg, 1990; Higgin, 1989; Higgins and Bargh, 1987).

It is believed that priming evokes a mental representation of behavior and the behavior itself (Dijksterhuis et al., 2007; McArthur and Baron, 1983). Regarding disability, it may evoke a behavior representation to distance oneself, thereby leading to actual distancing (Stone and Colella, 1996). Dijksterhuis and colleagues (2007) described that this behavior is not inherent but learned. For example, when able-bodied students encounter disability in schools, they traditionally find their peers with learning disabilities to be in Basic Skills Instruction (BSI). BSI is a special education system that segregates the learning impaired, and limits their access to a general education curriculum (Blanchette, Treillet, and Davies, 2015). The BSI classroom, and the students in it, may shape an outsiders' understanding that people with disabilities are not capable of the same academic and post-academic outcomes as those without disabilities (Blanchette et al., 2015). Their future encounters with disability could thus arouse a mental representation of unfavorable behavior that supports its segregation from mainstream society, much like a BSI classroom does (Shapiro, 1993).

Priming appears to influence criteria that determine job-fitness (Uhlmann and Cohen, 2007). Regarding disability, it is referred to as "aversive disablism," a trained belief that people with disabilities are inferior to their able-bodied counterparts and less worthy of employment (Deal, 2007; Leaderbrand, 2008). Deal (2007) claimed that employers do not inherently dislike people with disabilities, however, they are led to believe that being able-bodied is superior. This assertion is supported by Louvet (2007)

whose participants poorly rated job applicants with physical disabilities for occupations that required public contact. The results indicate that socialization skills may be perceived as missing among the disabled (Lengnick-Hall et al., 2008; Boyle, 1997; Stone and Colella, 1996). Louvet, Rohmer, and Dubois (2009) similarly found that applicants with disabilities were evaluated negatively when they interviewed for "masculine" occupations because disability was considered emasculating. In sum, these empirical demonstrations suggest that priming may have trained participants' minds to stereotype (Bargh, Chen, and Burrows, 1996; Bargh, 1994; Devine, 1989).

Priming is a function of stereotyping, which describes the information, opinions, and expectations that are mutually shared about groups and their members (Devine, 1989; Sherman, Allen, and Sacchi, 2012; Hamilton and Trolier, 1986; Hamilton and Sherman, 1994). It chiefly protects ego, and enhances the social identities of observers by triggering discriminatory behavior (Hamilton and Sherman, 1994; Fein and Spencer, 1997; Pickett, Bonner, and Coleman, 2002). Take, for instance, an employer who must decide between two equally proficient applicants with and without disabilities. Disability notwithstanding, both applicants are identical. However, disability creates cognitive dissonance in the employer. The employer is taught to believe that people with disabilities (1) lack the knowledge, skills, abilities, and other characteristics (KSAOs) required to work; (2) are less productive than their able-bodied counterparts; (3) are costlier to hire compared to people without disabilities because accommodations are necessary to achieve an equal level of productivity; (4) are a legal liability; (5) are a danger in team-based work because coworkers fear job interdependence; and (6) repel customers because disability evokes guilt and discomfort that decrease sales (Schwochau

and Blanck, 2003; Greenwood and Johnson, 1987; Stone and Colella, 1996; Lengnick-Hall et al., 2008; Schur et al., 2013). Priming describes how these learned stereotypes toward people with disabilities cause the employer to block encounters with them as a result (Boyle, 1997). This example is comparable to Boyle (1997) who found that mixed interactions between people with and without disabilities were often avoided. Evidence found that people with disabilities were stereotyped as "damaged goods," "second-class citizen," and "invalids" who were incapable of making competent decisions at work (Boyle, 1997, p: 262).

However, the idea that priming evokes discrimination disregards an important difference between (a) acquiring the knowledge of a stereotype and (b) accepting it (Devine, 1989; Ashmore and Del Boca, 1981). Members of a majority in-group may or may not want to validate the stereotypes that accompanies disability if it does not resonate with their beliefs. This cognitive act of subduing bias is described as Stereotype Suppression (King and Ahmad, 2010; Crandall and Eshleman, 2003).

Stereotype Suppression. According to Ehrlich (1973), stereotypes are a tradition of society where no individual can escape learning the dominant feelings and presumptions assigned to outgroups. However, Stereotype Suppression describes how it can be repressed to undermine discrimination (Crandall and Eshleman, 2003). People tend to "think the unthinkable," so mental activities are not free of negative thoughts. However, they are controllable (Macrae, Bodenhausen, Milne, and Jetten, 1994). That is, one can reject their dark impulses despite how easily they come to mind (Macrae et al., 1994; Devine, 1989; Fiske, 1993). It depends on the sequential operation of two

cognitive processes, namely *controlled operating* and *automatic monitoring* (Macrae et al., 1994; Devine, Monteith, Zuwerink, and Elliot, 1991; Monteith, 1993).

Regarding the *controlled operating* process, observers suppress unwanted thoughts by consciously replacing it with a distractor (Wegner, 1994). The distractor functions as a dampener whereby unwanted thoughts are replaced, and observers have something different to focus on (Bargh, 1989; Logan, 1988; Macrae et al., 1994; Wyer, Mazzoni, Perfect, Calvini, and Neilens, 2010). For example, an employer who encounters an impressively qualified applicant with spinal cord injury may concentrate on the applicant's portfolio to reasonably determine job-fitness instead of concentrating on their use of a wheelchair. The portfolio thus help employers repress stereotypes that are associated with the use of a wheelchair by attracting their attention (Bargh and Chartrand, 1999). Furthermore, when employers decide to reinterpret the applicant, their thinking becomes more intentional (Fiske, 1984).

It is believed that disability is monitored unconsciously afterward (Wegner, 1994). This is described as the *automatic monitoring process*. Through subconscious information processing, any content that alludes to stereotypes is automatically replaced with an opposing distractor (Wyer et al., 2010). In the beginning, the employer might pay close attention to attributes that are relevant to the job description by learning to suppress stereotypes associated with disability (Fiske and Neuberg, 1990). Once the mind has been trained, stereotype suppression becomes instinctual (Bargh, 1997). It is akin to automaticity, where one unconsciously prime themselves to be less stereotypically driven (Fiske and Taylor, 2013). The automatic monitoring process allows disability "to pass the objective standard of registering on the senses but not exceed the subjective

standard of registering on awareness" (Fiske and Taylor, 2013, p: 25). The employer is not concentrating on disability upon encountering it (Ferguson and Bargh, 2004a; Aarts, 2012; Fiske and Taylor, 2013). It is a matter of detection and restraint that requires the mind to be running automatically (Macrae et al., 1994, 1998).

However, it may be that employers are not resistant to stereotyping. Suppression can deplete cognitive resources that resurface stereotypes (Garavan, Ross, and Stein, 1999; Wyer et al., 1998). In other words, if enough stress is applied toward one's cognition, it can lead to a post-suppression rebound effect (Wegner, 1989; Wegner, Schneider, Carter, and White, 1987; Wegner, Shortt, Blake, and Page., 1990; Wegner, Schneider, Knutson, and Mcmahon, 1991).

Rebound Effect. A Rebound Effect describes the increased accessibility of unwanted thoughts. The research on mental control suggests that stereotypic thoughts may return upon suppression because controlled and automatic processes compete for the same mental resources (Wyer, Sherman, and Stroessner, 1997b, 2000; Wegner and Erber, 1992; Wegner and Pennebaker, 1993). Once intent is relaxed, observers revert to entertaining stereotypes, and act on them accordingly.

However, thought suppression is not resilient. Conventional research on stereotype suppression describes that observers create cognitive associations about a social category (e.g., disability), and can readily refer to those associations to suppress the unwanted thoughts. However, unwanted thoughts can reach consciousness by the very same cognitive method that is used to suppress it (Macrae et al., 1994). This is due to repetitive activation or overtraining one's mind. According to the literature on neuroanatomical science, the overuse of synapses causes decay that results in a slower

activation of thought suppression (Higgins and King, 1981; Higgins, 1989). Higgins (1989) elaborated the idea of cognitive load by explaining that:

> …the decay over time of the excitation level of a construct following its last activation is slower when the construct has been frequently activated than when it has been activated only once (p: 86).

Therefore, rebounding may be caused by a delay in controlled cognition following its repeated use (Higgins, 1989; Macrae et al., 1994).

One way to conceptualize the rebound effect is by exploring how the brain codifies information. The literature on perception and cognition indicates that the brain may function through predictive coding, a process by which sensory information is handled efficiently to facilitate appropriate responses (Friston, 2005; Rao and Ballard, 1999). Predictive coding optimizes the mind by associating incoming stimuli with previous reactions toward it. This allows cognitive resources to be freed for new stimuli. The brain then compares and updates itself through controlled and automatic processes on an ongoing basis. However, the constant monitoring and updating of errors uses the same attentional resources that deplete the brain's capacity to handle both processes (Frith, 2007a, 2007b; Carter, Braver, Barch, Botvinick, Noll, and Cohen, 1998; Carter, Botvinick, and Cohen, 1999; Engle, Conway, Tuholski, and Schisler, 1995). It causes a lapse in cognition where the repressed stereotypes return, including the stereotype-congruent behavior (Dijksterhuis et al., 2007; Bargh et al., 1996).

According to the argument offered by Macrae and colleagues (1994), the ideas behind Priming, Stereotype Suppression and Rebound Effect indicate that employers are not in complete control of themselves. In fact, studies of cognitive neuroscience find that unconscious information processing is a separate mental activity that stimulates distinct

regions of the brain and requires no attention compared to conscious processing (Desimone and Duncan, 1995; Knudsen, 2007). For example, the conscious processing of disability requires a selective focus in parts of the brain that raise attention and direct voluntary control over employer bias (Desimone and Duncan, 1995; Knudsen, 2007). However, attention that is less active and more recollection-based activates parts of the brain associated with stereotypes. Therefore, behavior relies on "the amount of selective cognitive work" that the mind performs (Fiske and Taylor, 2013, p: 60).

In addition, the contextual environment heightens employers' attention toward applicants. The features of an environment, namely the workplace, appear to influence whether employers accept or deny stereotypes associated with disability (Bargh, 1990; Macrae et al., 1994). The environment increases attention toward target applicants that shapes hiring behavior (Bargh, 2007; Stone and Colella, 1996; Fiske and Taylor, 2013). Take, for instance, two employers—small and large-sized (respectively)—who evaluate a cover letter that describes a job applicant as "competent, smart, diligent, and thorough despite my impairment." Would either employer express interview-intent? Does the contextual environment moderate their cognition in doing so? As evidenced by Ameri et al. (forthcoming), perhaps the small employer's implicit bias toward disability prevails because they are not influenced by an environmental factor (i.e., covered by ADA legislation), whereas the other reasonably considers their employment because of it.

The next several segments expand the concepts behind Priming, Stereotype Suppression, and Rebound Effect by offering a more descriptive explanation of hiring behavior through (1) Impression Making, (2) Information Processing, (3) Role Congruity, (4) Dual Processing, and (5) Stereotype Content Modeling.

Table 1
Summary of Priming, Stereotype Suppression, and Rebound Effect Models, and their Implications

Theory	*Definition*	*Application to Disability*
• Priming	Describes a technique of conditioning one's memory. In the context of social behavior, it is a function of stereotyping where one stores and recalls traits about a target (Leaderband, 2008). These traits refer to an abstract portrayal of a person that is based on certain behavioral characteristics—namely mannerisms, expressions, reactions, and volition (Carr and Kingsbury, 1938). They are often learned by others who map a trait holder to a behavior (Dijksterhuis, Chartrand, and Aarts, 2007).	The concept of Priming leads the study to predict that, in the context of disability, it may evoke a mental representation of behavior to distance oneself, thereby leading to actual distancing.
• Stereotype Suppression	Describes a form of mental control where an observer consciously blocks a thought (Wegner, 1989) for reasons that include (1) personal values around fairness and openness or (2) personal costs of acting on stereotypes. Thought suppression depends on the sequential operation of two cognitive processes, namely *controlled operating* and *automatic monitoring* (Macrae et al., 1994; Devine, Monteith, Zuwerink, and Elliot, 1991; Monteith, 1993).	Stereotype Suppression leads the study to predict that employers consciously detect stereotypes about disability and repress them through practice, so that it becomes instinctual.
• Rebound Effect	Describes a lapse in cognition where the repressed stereotypes return, including the stereotype-congruent behavior (Dijksterhuis et al., 2007; Bargh, Chen, and Burrows, 1996).	Rebound Effect leads the study to predict that the depletion of attentional resources produces a lapse in judgment and hiring behavior.

Impression Making. Person-perception research has stated that people experience others through "knowledge structures" that are an interrelated collection of facts about targets (Jones, 1990; Schneider, Hastorf, and Ellsworth, 1979). For instance, employers may initially combine applicant traits into one unit and, subsequently, develop impressions about them that correspond with the environment (Fiske and Taylor, 2013). The configural model (Asch, 1946) and holistic approach (Kant, 1969), as well as the algebraic model (Asch, 1946) and elemental approach (Locke, 1959) have different ideas about how this occurs.[4]

The configural model describes how individuals form a unified impression of others. People are expected to evaluate the traits of their targets and seek consistency (Asch, 1946). Traits are integrated to form an overall impression of targets, and the meaning of individual attributes can change in the context of all other attributes (Asch, 1946). For example, a disabled, intelligent job applicant may be perceived as unqualified, whereas an able-bodied, intelligent job applicant may be perceived otherwise. The perception of intelligence changes as disability status changes. The social interaction between employers and applicants with disabilities is predicted to decrease perceived job-fitness because employers seek applicants who are able-bodied (Schur, Kruse, and Blanck, 2005; Asch, 1946). Therefore, a mismatch is expected to cause unfavorable hiring outcomes.

Like the configural model, a holistic approach also embraces a target in its entirety (Kant, 1969). The model describes human cognition as subjective. The mind's construction of reality extends beyond the target that includes the surrounding field. The

[4] It should be noted that while both pairs are distinct, they are equally valid models that describe impression making under different informational and motivational conditions (Fiske and Taylor, 2013).

target and the context in which the target is placed thus motivate perception. An appropriate example includes someone who lives with Marfan's syndrome, an impairment of extreme height. If the person is among others of average height, he or she would not be perceived as "normal." However, the same cannot not be said if the person were standing among a team of professional basketball players. Similarly, an employer's negative evaluation toward applicants with disabilities is derived from the contextual environment (i.e., the workplace) where able-bodied people are the majority (Schur et al., 2005; Schur et al., 2013; Fiske and Taylor, 2013).

Alternatively, the algebraic model uses simple summaries that evaluate each individual trait, up or down. Observers (a) take each individual trait, (b) evaluate it in isolation, and (c) then combine the evaluations to formulate a judgment. Regarding hiring behavior, employers may encounter job applicants and combine all the perceived pros that indicate ability (e.g., intelligence) and cons that suggest inability (e.g., impairment) to form a general impression that motivates hiring behavior (Anderson, 1981; Fishbein and Ajzen, 1975). Employer impressions are formulated by adding the values of all traits, including disability, into one number, which evokes a judgement. If the number is largely negative due to disability, employers likely exhibit aversion (Asch, 1946).

Similarly, the elemental approach divides traits that embody target individuals and evaluates them separately (Fiske and Taylor, 2013). If the trait is unfamiliar, it triggers aversive behavior. For example, disability evokes unfavorable hiring behavior when employers are unfamiliar with it in the workplace (Hoyt and Burnette, 2013). However, if the trait (i.e., disability) is familiar, it is anticipated that behavior (i.e., hiring

behavior) will be more favorable. In fact, research has found that repeated exposure to people with disabilities is associated with more positive expectancies and affective reactions toward them (Scherbaum, Sherbaum, and Popovich, 2005).

In sum, the algebraic model and holistic approach describe how observers formulate impressions of target individuals based on aspects about them that are associated with the immediate environment. In contrast, the configural model and elemental approach describe how observers develop impressions about target individuals that are based on salient traits and a familiarity with those traits. The models and approaches are fundamentally person-perception tools that are used under different informational circumstances (Ostrom, 1977; North and Fiske, 2012). The concepts mutually facilitate understanding and mitigate cognitive conflict through aversion (Festinger, 1957; Gawronski and Strack, 2012; Harmon-Jones, Amodio, and Harmon-Jones, 2009; Brehm, 2007).

The interplay between impression making and behavior is clarified by Information Processing, the idea that mental operations are broken into serialized cognitive stages (Broadbent, 1958).

Information Processing. Information Processing is described as cognitive operations that are divided into successive stages. Here, observers transform sensory information to produce a response (Goodwin, 2005). Regarding disability, it is believed that an impairment (i.e., the stimulus) shared by the job applicant (i.e., an organism) produces unfavorable hiring behavior (i.e., a response). The approach is cognitively mediated by "consistency seeking," the act of identifying discrepancies in employer cognition and averting them (Fiske and Taylor, 2013). For example, employers who

encounter job applicants with disabilities are predicted to feel uncomfortable, so they may reduce discomfort by informing applicants that the position is filled or closed.

According to Fiske and Taylor (2013), reducing this "aversive drive state" is rewarding because it relieves employers from negotiating with disability. The cognitive mechanism that excuses employers from overwhelming stimuli is referred to as "Drive Reduction" (Fisk and Taylor, 2013). It describes how employers discriminate to maintain the status quo at work (i.e., hiring only able-bodied workers). The idea is elaborated by Role Congruity theory of prejudice that suggests employers perceive an incongruity between people with disabilities and their participation in the workplace (Eagly and Diekman, 2005; Eagly and Karau, 2002).

Role Congruity. Role Congruity theory describes that target individuals will be positively evaluated when their characteristics are perceived as aligned with their social roles (Eagly and Diekman, 2005). Here, employers' perceived congruity is expected to be lower toward applicants with disabilities because they are viewed as inferior. Furthermore, employers likely perceive disability to be incompatible with workforce participation (Schur et al., 2013; Baldwin and Johnson, 2006; Hahn, 1985).

In the extreme, the perceived social role of people with disabilities is to become objects of charity that rely on the kindness of others. A less extreme view is that people with disabilities can contribute to their own livelihood, but only through low-skill work. People with disabilities who violate these social role expectations consequently create role incongruities (Eagly and Karau, 2002).

Role Congruity resembles Social Dominance Orientation (SDO) that describes blatant bias toward target groups (Fiske and Taylor, 2013; Sidanius and Pratto, 2003;

Pratto, Sidanius, Stallworth, and Malle, 1994; Amiot and Bourhis, 2005; Sidanius, Pratto, and Bobo, 1996). According to SDO, perceived role incongruities are established by group hierarchies (Marco, Licciardello, Mauceri, and La Guidara, 2013). For example, when applying to high-skill occupations, people with disabilities are perceived as unworthy because opportunities here are commonly offered to able-bodied individuals (Duff and Ferguson, 2011). Therefore, if an applicant with spinal cord injury applies for an accounting job, the employer may accept legitimizing myths toward them and demonstrate unfavorable hiring behavior (Sidanius and Pratto, 1999). Much like Role Congruity, the myths depict people with disabilities as unqualified and unable to handle jobs of high-skill.

There is evidence indicating that Role Congruity hinder the employment prospects of people with disabilities in high-skill work (Duff and Ferguson, 2011; Ameri et al., forthcoming). Authors (2007b) examined the attitudes of human resource managers regarding hiring people with disabilities in their accounting firms. The managers had biased opinions of the contribution that people with disabilities could make in accounting as compared to people without disabilities. In fact, one manager cited that:

> I would say that a mentally disturbed person wouldn't really fit into the environment because, overall we work as a team - and people probably wouldn't have the patience. It's not like they are coming and stacking a shelf, where you show them how to stack the shelf and they carry on and do it. But if somebody wanted to do the garden there is no reason why they couldn't come in and do the gardens. I mean, that could possibly be a mentally disturbed person. Most of them do get a lot of pleasure from gardening. So that kind of job is OK, but to actually come in and actually be a typist even, if you were mentally disturbed, it would be difficult (Authors, 2007b, p: 30).

According to the manager, the "team" of presumably able-bodied individuals preferred not to collaborate with disabled employees because of their social role expectations.

Here, high role congruity caused a favoritism toward the in-group (i.e., the human resource manager).[5]

However, it is likely that employers can suppress their consistency seeking by establishing a cognitive monitoring system (Fiske and Taylor, 2013). Behavioral consequences of consistency seeking depend entirely on the employer, specifically their motivation to confirm or undermine a commonly shared belief toward applicants with disabilities (Gawronski and Strack, 2012). Hiring or not hiring people with disabilities are mutually exclusive options (Festinger, 1957). According to Festinger (1957), inconsistencies that stimulate aversive feelings are moderated by a signaling system. For example, discrimination may be absent when a high incentive (i.e., a strong signaling system)—like an affirmative action initiative that offers government subsidies by enforcing preferential treatment toward minority groups—eases aversive feelings (Gawronski and Strack, 2012).[6] In contrast, a low incentive (i.e., a poor signaling system)—like only being told not to discriminate—may be insufficient to ease aversion toward target applicants (Festinger and Carlsmith, 1959). The prevention of unwanted cognitions, and the signal that drives it, is referred to as Dual Processing (Brewer, Brewer, and Feinstein, 1999; Kahneman and Frederick, 2002; Araten-Bergman, 2016).

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[5] Also, Role Congruity is not limited to accounting or employment generally. In most societal contexts, disability can signal inferiority that maintains group-based hierarchies between people with and without it. According to Barnes and Mercer (2005) it creates social hierarchies that are, "…barriers across everyday life, such as inaccessible education, information and communication systems, working environments, inadequate disability benefits, discriminatory health and social support services, inaccessible transport, houses and public buildings and amenities, and negative cultural and media representations" (p: 531).

[6] According to the Employer Resource Network on Disability Inclusion (EARN), federal contractors take on certain obligations by doing business with the federal government. Not only are they provisioned against discriminating by sex, race, color, national origin, religion, disability or status as a protected veteran, they must also initiate protective measures to hire persons from certain groups that are historically discriminated against. For a complete review, see: http://www.askearn.org/topics/federal-contractor-requirements/.

Dual Processing. In its truest form, Dual Processing is a behavioral intervention that develops at the individual-level (Festinger and Carlsmith, 1959). Dual Processing embodies the idea that people have two different modes of information handling. The modes—System 1 and System 2—are connected when people weigh intuitive judgments against thoughtful decision-making (Kahneman and Frederick, 2002; Stanovich, 1999; Epstein, 1990a; Kahneman, 2003, 2011; Gladwell, 2005; Smith and DeCoster, 2000).

In System 1, people are subject to bias because their heuristic processing (i.e., the act of making minimal cognitive demands on the observer) activates judgmental rules that are learned and stored in memory (Chen, Duckworth, and Chaiken, 1999). Alternatively, System 2 instills comprehensive and analytic reasoning by intercepting judgments and improving them (Chen, et al., 1999). Regarding employment, the struggle ultimately lies in combatting belief biases with accurate judgments of applicants with disabilities.

Employment decisions could involve rapid intuitive judgments in which courses of action spring to mind with little or no effort of conscious thinking (Aarts, 2012). Here, employers are inclined to exhibit aversion upon encountering disability because their discomfort and unfamiliarity toward it arouse beliefs that it impedes work productivity (Dixon et al., 2003). The System 1 mode of thinking leads to negative bias that results in people with disabilities being poorly evaluated in contrast to their nondisabled counterparts (Colella et al., 1998). If, however, employers engage in System 2 reasoning, they reconsider stereotypes and acknowledge that some people with disabilities can perform work-related tasks (Dixon et al., 2003).

The System 1 versus System 2 thinking is comparable to intuition versus reasoning (Kahneman, 2011; Smith and DeCoster, 2000). The intuitive side is holistic, effortless, rapid, associative, crude and inflexible. The reasoning side is slow, reflective, analytic, logical, deliberate, effortful, and flexible (Fisk and Taylor, 2013). Also, System 1 relies on consistencies and concentrates on memory recollection. Familiarity is important here, and "schemas"—cognitive structures that represent knowledge about a concept that include its attributes (and the relationships among those attributes)—allow observers to fill in missing details (Fiske and Taylor, 1991). Being "schema-driven" involves a top-down approach that is more instinctive than a bottom-up approach that embodies a "data-driven process" (Fiske and Taylor, 1991). Thus, some employers use a schema-driven approach to simplify their perceptions of people with disabilities, whereas others use a data-driven approach to deliberately evaluate them (Fiske and Taylor, 1991).

The choice of being schema-driven or data-driven is a function of perceived Role Congruity. For example, when there are no inconsistencies, observers are likely to make positive evaluations through System 1 because targets are adhering to their expected social roles. The presence of inconsistencies, however, may produce aversion using only the System 1 approach because observers are firmly relying on stereotypes. Adding observable data through System 2 shapes deliberate reasoning that lessens aversion. Regarding hiring behavior, employers may readily recruit people with disabilities into low-skill jobs through System 1 because these jobs are consistent with their social role expectancies. However, getting hired into high-skill jobs may be more difficult and demands a System 2 approach by employers because people with disabilities are largely unrepresented in high-skill occupations (Kruse, Schur, and Ali, 2010).

The transition from an intuitive approach to an objectively driven one is enabled by a signaling system. A signaling system describes information that is exchanged between an agent (i.e., a signal) and observer (Spence, 1973). According to Spence (1973), observers interpret a signal and modify their behavior accordingly. For example, corporate best practices about diversity and inclusion that are designed to ensure fairness depict a signaling system strong enough to persuade employers in becoming unbiased toward qualified applicants with disabilities (Cable and Turban, 2003; Roberson, Roberson, Davidoff, Davies, Shapiro, 2005). Hiring practices are thus modified by a signaling system. It becomes instrumental to suppressing or reinforcing individual-level dispositions toward disability, thereby establishing impartiality in hiring. The literature on signaling describes that a corporate policy on affirmative action is a strong predictor of hiring people with disabilities (Araten-Bergman, 2016). It may function as a signal to thwart consistency seeking and employer discrimination. That is, the transition from System 1 (i.e., intuitive solutions that resemble employer discrimination) to System 2 (i.e., deliberate and effortful reasoning) cannot occur without a signal (Kahneman, 2011).

However, Dual Processing is not without complications. The suppression of stereotypes may result in a Rebound Effect where "stereotypic associations return with a vengeance" (Fiske and Taylor, 2013, p: 39). It is believed that consistency seeking prevails over deliberate reasoning because employers perceive themselves and people with disabilities as members of distinct social units. Stereotype Suppression is thus often overcome by antipathy that is based on "faulty and inflexible generalizations," especially when cognition is relaxed (Allport, 1954, p: 9). Therefore, while Dual Processing allows employers to consciously suppress stereotypes, it is believed that they do eventually

exhibit bias because overwhelming stereotype content dimensions deplete attentional resources (Fazio, Jackson, Dunton, and Williams, 1995).

For example, rebounding is a function of employers seeking interpersonal and intergroup consistencies. That is, employers want to know what the target applicant is endeavoring and how capable they are to accomplish it. When employers encounter applicants with disabilities they must resolve two prominent inquiries. First, is the applicant a friend or foe? Second, is the applicant capable or not? The Rebound Effect may be incited by these inquiries because, cognitively, the constant monitoring and updating of observable data depletes attentional resources (Frith, 2007; Carter et al., 1998; Carter et al., 1999; Engle et al., 1995). It causes a lapse in cognition where the repressed stereotypes return, leading to stereotype-congruent behavior (Katz and Braly, 1933; Gilbert, 1951; Karlins, Coffman, and Walters, 1969; Leslie, Constantine, and Fiske, 2002; Devine and Elliot, 1995; Madon, Guyll, Aboufadel, Montiel, Smith, Palumbo, Jussim, 2001; Fiske, 1992, 1993b; Dijksterhuis et al., 2007; Bargh, Chen, and Burrows, 1996).

Stereotype Content Model. The Stereotype Content Model (SCM) (Fiske, Cuddy, Glick, and Xu, 2002) describes stereotypes through two dimensions, *warmth* and *competence*. The SCM, warmth-by-competence, space operates across a range of social perceptions toward target individuals and the groups they affiliate themselves with (Fiske et al., 2002). It fundamentally influences the level of prejudice and behavior toward targets (King and Ahmad, 2010). For example, stereotype content could be associated with the emotions of *pity* (i.e., high warmth, low competence), *admiration* (i.e., high

warmth, high competence), *contempt* (i.e., low warmth, low competence), and *envy* (i.e., low warmth and high competence).

It is believed that different types of disability are associated with differing stereotypes that likely produce varied reactions by employers (Baldwin and Johnson, 2006). For example, people who are paraplegic can be classified as having high warmth and low competence, whereas war veterans with PTSD can be classified as having high warmth and high competence. The varieties result in dissimilar stereotypes and treatments, where paraplegia imbues compassion and PTSD imbues admiration (Colella et al., 2012).

According to Fiske and colleagues (2002), "not all stereotypes are alike" (p: 878). Perceptions of target individuals and, more importantly, the social categories they fall under are not fixed. In other words, attitudes toward individuals who are classified as "safe," may shift from context-to-context (Fiske et al., 2002). It was originally believed that stereotype content corresponds with undying principles where unfavorable stereotypes were strictly attributed to outgroups, and favorable stereotypes were ascribed to in-groups (Allport, 1954; Fiske et al., 2002). Stereotypes, however, are not static. According to Impression Making theory, the context in which a target individual is surrounded also affects observer cognition. Stereotypes are characterized by the two dimensions of perceived warmth and competence. That is, stereotypes are amplified by these dimensions. Take the elderly, for example. They are traditionally seen as subordinate and noncompetitive (Fiske et al., 2002), therefore the favorable stereotype of *high-warmth* intersects with the unfavorable stereotype of *low-competence*, consequently driving youths to preserve their advantage over the elderly in the workplace. Therefore,

the intersections of warmth-by-competence can help in-groups maintain their status and privileges in society (Fiske et al., 2002).

Summary. Social cognition contributes greatly to the literature on disability. According to its models, some employers may have an overriding goal of consistency, whereas others may show attitudinal and behavioral flexibilities. The models principally explain how people react to what is "normal" or surprising, and, depending on the degree of cognitive dissonance, behavior becomes favorable or unfavorable for targets (Kahneman and Miller, 1986). The literature on disability has addressed labor market discrimination through statistical or taste-based discrimination models. However, the use of socio-cognitive concepts that draw connections between impression creation and response, social role comparison, subjective-versus-objective reasoning, and rebounding by stereotype content can help scholars more fully understand hiring behavior that underlies the discrimination models.

Regarding disability and employment, the study explored whether a cognitive sequence occurs through *Impression Making* where employers may assess individual traits of an applicant or assess the applicant in relation to the environment; followed by *Information Processing* where disability becomes the stimulus that may elicit unfavorable hiring behavior; followed by *Role Congruity* where employers are expected to express discrimination toward applicants with disabilities to maintain social hierarchies; followed by *Dual Processing* where employers may suppress aversive behavior, especially when a signaling system (i.e., policies on affirmative action) is salient enough to shape deliberate reasoning; followed by *Stereotype Content Modeling* where suppressing stereotypes may

result in a Rebound Effect because the constant monitoring and updating of perceived warmth and competence depletes attentional resources that shape deliberate reasoning.

The models are part of an immense body of literature that, according to Bertrand and Duflo (2016), "attempts to understand the roots of prejudice, widely characterized as negative evaluation of others made on the basis of their group membership" (p: 4). Here, it is argued that disability research must integrate social psychology that systematically addresses discrimination by exploring *how* it occurs. In doing so, scholars can then fully evaluate the existing evidence that identifies low employment rates as attitudinally driven. A detailed review of the empirical evidence is presented next to demonstrate how scholars have traditionally approached disability and employment, and how this manuscript intends to advance knowledge on this issue.

Table 2
Summary of Social Cognition Models and Implications

Theory	*Definition*	*Application to Disability*
Impression Making • Configural Model • Holistic Approach • Algebraic Model • Elemental Approach	Describes person-perception tools that are used under different informational circumstances (Ostrom, 1977; North and Fiske, 2012). • The algebraic model and holistic approach addresses how individuals form a general impression of a target based on perceived positive and negative aspects of that target. • The configural model and elemental approach describes how individuals develop impressions based on the key features they see in targets, while the peripheral features have much less influence.	The theories that comprise Impression Making in conjunction with Information Processing Theory would lead to the prediction that prejudice will directly affect employer behaviors toward people with disabilities, based on employers' need for sameness in the workplace.
Information Processing Theory	Describes cognitive operations can be broken into sequential stages, wherein the mind transforms sensory information to produce a response (Goodwin, 2005).	
Role Congruity	Describes that a group will be positively evaluated when its characteristics are recognized as aligning with that group's typical social roles (Eagly and Diekman, 2005).	Role Congruity Theory leads to the prediction that employer prejudice will exist in occupations of high skill more than in occupations of low skill, where people with disabilities who apply for employment for high-skill jobs violate social role expectations and consequently create role incongruities in the views of employers. However, given the conditions of Dual Processing Theory, employers are predicted to curb bias toward people with disabilities, if employers engage in objective reasoning where they reconsider stereotypes and acknowledge other job-relevant characteristics, such as education. Furthermore, greater exposure to people with disabilities can provoke System 2 thinking where it counteracts some of the stereotypes associated with disability.
Dual Processing	Describes different modes of information handling among people. The modes—System 1 and System 2—are connected when people weigh intuitive judgments against thoughtful decision-making (Kahneman and Frederick, 2002).	
Stereotype Content Model (SCM)	Describes that stereotypes possess two dimensions, warmth and competence (Fiske, Cuddy, Glick, and Xu, 2002).	SCM leads to the prediction that while objective reasoning is predicted to curtail employers from exhibiting prejudice toward people with disabilities, issues of trust and competence will nevertheless deplete attentional resources, thereby causing intuitive, unfavorable hiring behavior.

4. Empirical Methods and Evidence about Disability and Employment.

The segment begins with a description of survey and laboratory research methods that are normally used to measure labor market discrimination. Both have been extremely helpful in detecting prejudice and isolating the socio-cognitive foundations beneath it. However, survey and laboratory methods have procedural flaws. This raises the importance of field research that is also reviewed here to address some of the limitations in common research schemes.

Survey Research. Survey evidence has found that employers prefer able-bodied employees compared to those with disabilities (Shaughnessy, Zechmeister and Jeanne, 2011; Comb and Omvig, 1988; Drehmer and Bordieri, 1985; Johnson, Greenwood and Schriner, 1988). In fact, 23% of employers have reported a preference for workers without disabilities (Crudden and McBroom, 1999). The aversion toward disability was further illustrated by a 2008 nationally representative survey in which 34% of employers cited "attitudes of customers," 32% cited "discomfort and unfamiliarity," 20% cited "attitudes of supervisors," and 29% cited "attitudes of co-workers as challenges to hiring people with disabilities (Domzal et al., 2008, p: 13). Surveys also found that 47% of employers are influenced by co-worker attitudes toward disability when making hiring decisions (Kaye et al., 2011). The findings are consistent with previous surveys where 22% of employers stated that stereotypes were a barrier to hiring people with disabilities in their own business (Bruyère, 2000), 49% stated that people with disabilities lacked the skills and experience to work (ODEP, 2008), 31% stated they were not comfortable with managing people with disabilities overall (ODEP, 2008), and 20% stated that labor market discrimination was the greatest barrier to employing people with disabilities

(Dixon et al., 2003). Therefore, it seems that the stigma toward disability influences opportunities for employment (Fitzsimons, 2009). For example, in a 2010 survey, 27% of people with disabilities reported that others treated them differently when their impairments were recognizable, and 14% mentioned that their disabilities triggered avoidance (Kessler Foundation/N.O.D., 2010).

This evidence is indicative of company cultures that are inflexible regarding diversity (Stone and Colella, 1996). Among employees generally, surveys that measured perceptions around the "culture of flexibility," found that 16% of employees in large-sized firms perceived low support for diversity, collaboration, and personalized attention, compared to 26% of employees in small-sized firms (Bond, Galinsky, Kim, and Bownfield, 2005; Schur, Kruse, and Blanck, 2005). This rigidity may discourage people with disabilities from seeking employment (Schur et al., 2009). Evidence from a 2006 survey, for instance, found that only 20% of people with disabilities were actively job hunting in comparison to 33% of people without disabilities (Ali et al., 2011). A 2015 survey also found that about 8-in-10 people with disabilities were not participating in the labor market, compared to 3-in-10 people without disabilities (BLS, 2015). In a corresponding survey, 94% of people with disabilities attributed their difficulties in employment to an impairment, 42% said they could not find the proper accommodations to work effectively, 32% said that additional work would disqualify them from supplemental security income (SSI), and 24% said that jobs are scarcely available (Harris, 2003).

However, other surveys revealed opposing evidence that raise concerns about the inherent constraints of measuring disability and employment this way. Kaye, Jans, and

Jones (2011) described the inconsistency between low employment rates and positive employer attitudes as suspicious. That is, employers claim their work environments successfully welcome and accommodate people with disabilities, but that may not be the case (Kay et al., 2011). Since the ADA was first introduced, employers that have been sampled through surveys have mostly described their openness to disability as "rather rosy" (Kaye et al., 2011, p: 526; Hernandez, Keys, and Balcazar, 2000).

For example, regarding employment, Cooper (1991) found that employers conveyed moderate support for hiring people with disabilities. Levy, Jessop, Rimmerman, and Levy (1991, 1992) found that among Fortune 500 companies, employers expressed positive attitudes toward hiring people with extreme disabilities because it benefited corporate culture. Furthermore, these employers were pleased with the performance of their disabled workers generally (McFarlin, Song, and Sonntag, 1991). Regarding middle managers and human resources, one 2010 survey showed their favorable feelings toward disabled employees (Chan, Strauser, Maher, Lee, Jones, and Johnson; 2010), and a corresponding 2002 survey showed their commitment to hiring people with disabilities (Unger, Wehman, Yasuda, Campbell, and Green, 2002).

Regarding workplace accommodations, Bruyère (2000) found that employers were open to offering reasonable workplace accommodations to qualified applicants with disabilities. This finding is consistent in most surveys. For example, in a study of privately-held companies and Federal agencies, human resource managers reported that they had, at one point or another, accommodated employees with disabilities (Bruyère, 2000; Bruyère, Erickson, and Van Looy, 2005, 2006). They described their organizations as more accessible because of the inclusion of transportation programs and customized

tools. Managers also cited that jobs were restructured to serve people with and without disabilities equally (Bruyère, 2000; Bruyère, Erickson, and Van Looy, 2005, 2006). Redesigning the work environment is also evident in a related survey where employers cited the benefits of telecommuting (or flextime) and improving office ergonomics generally (Kessler/N.O.D./Harris, 2010).

When employers were surveyed about the cost of accommodations, they claimed that it was worthwhile (Unger et al., 2002). In other words, workplace accommodations can improve productivity and retention as well as corporate culture (Kaye et al., 2011; JAN, 2010; Hartnett, Stuart, Thurman, Loy, and Batiste, 2011). Even when employers are probed about cost anxieties regarding accommodating people with disabilities, only a small fraction expressed concerns (Soloveiva, Dowler, and Walls, 2011; Schartz, Henricks, and Blanck, 2006). In fact, according to a 2008 survey of employers that measured the indirect costs of accommodating people with disabilities, 54% cited no expenses. Moreover, 91% cited benefits of accommodations that included retention, 71% cited increased productivity, 56% cited the removal of new employee training, 46% cited improved attendance, 40% cited improved collaboration between coworkers, and 35% cited improved morale (Soloveiva et al., 2011).

The positive attitudes of employers regarding disability is encouraging, but it is likely disputable (Kaye et al., 2011). If not for employer discrimination, what could possibly explain the low employment rate of working-age people with disabilities? Furthermore, why do people with disabilities—both as applicants and workers—regularly mention that employer attitudes block acquiring a job or keeping one? The contradictory evidence indicates that surveying employers to determine their actual attitudes and

corresponding behavior is risky and limited (Ren et al., 2008; BLS, 2015; Kaye et al., 2011; Shier et al., 2009; Honey, 2003). Furthermore, when employer attitudes are observed through surveys, there can be an imperfect relationship to hiring behavior. That is, attitudes do not indicate discriminatory behavior (Smith, 2002). According to Smith (2002), even if employers have strong feelings toward target groups, they may often not act on them:

> Given that only a moderate correlation exists between intergroup beliefs and attitudes (e.g., stereotypes and prejudice) and discriminatory actions, studying the former is not the same as studying the latter (p: 14).

In fact, most studies regarding attitudes and behavior found an average relationship between the two (Eagly and Chaiken, 1993) because it depends on moderating variables that are related to the persons involved (Blank, Dabady, and Citro, 2004). It also depends on surrounding factors in which attitudes are measured (e.g., the target group, data collection mode, question format, time and place of survey, interviewer attributes, and the like) (Smith, 2002; Blank et al., 2004). For instance, people may demonstrate kindness to appear favorably by others (Ajzen, 1991). Likewise, subtle or indirect acts of discrimination that are performed or encountered may not be detected by using explicit items (Smith, 2002). Perhaps even the term *discrimination* may be interpreted differently between participants (Blank et al., 2004). If this is the case, then why not measure discrimination directly? There are few surveys that have attempted to measure the rate of discrimination directly because, methodologically, it is difficult to accomplish (Blank et al., 2004; Smith, 2002; Dovidio, 1993; Fiske, 2000). Surveys are thus limited to capturing self-reported evidence regarding perceptions and experiences of discrimination that cannot be proven (Smith, 2002).

Regarding disability, survey evidence may inadequately explain employer hiring behavior (Aronson, Wilson, and Brewer, 1998). It is because employers are prone to response bias (Holtgraves, 2004). In other words, concepts like social desirability and self-selection biases may moderate their responses to reflect ones that are publically acceptable (Kaye et al., 2011; Kraus, 1995; Unger, 2002; Ren et al., 2008; Hernandez, Keys, and Balcazar, 2000; Luecking, 2008). Social desirability describes a type of cognitive response bias that impacts the way in which participants respond to surveys. The responses are commonly inaccurate and untruthful (Furnham, 1986). That is, employers may answer delicate questions in a way that will be viewed favorably by others (e.g., overstating good behavior or underreporting unwelcomed behavior). Likewise, self-selection describes instances in which people select themselves into a population that is being tested, thereby causing a biased sample of non-representative participants (Kay et al., 2011).

According to Ballou and Markesich (2009), data collection through a survey design is complicated because respondent errors are likely unavoidable. Therefore, the act of over-reporting or underreporting influences survey quality whereby response bias interferes with interpreting group tendencies and individual dissimilarities (Furnham, 1986).

Avoiding response bias is difficult in measuring attitudes about disability. It could be that employers are sincere, but scholars cannot know for certain because, apparently, those with positive impressions about disability may be more likely to participate (Colella et al., 1998; Diksa and Rogers, 1996; Gilbride, Stensrud, Ehlers, and Evans, 2000; Millington, Szymanski, and Hanley-Maxwell, 1994). In addition, surveys

do not typically include a control group of able-bodied ratees to determine employer bias, which raises further questions about their use in measuring employer attitudes (Colella et al., 1998).

To lessen the issues of survey validity, Kaye and colleagues (2011) corrected employer response bias by sampling "ADA-recalcitrant employers" who indirectly showed resistance toward hiring job applicants with disabilities (2011, p: 527). Employers were recognized as ADA-recalcitrant if they disregarded the legislation at work (Kaye et al., 2011). To avoid misleading responses, the strategy included projective questions that asked about the respondents' impressions of employers generally. The researchers assumed that respondents would disclose their real feelings toward people with disabilities by describing other employers:

> Instead of asking about the participants' own attitudes and experiences, we ask them to speculate as to the attitudes and behaviors of employers in general, not necessarily their own business or government entity (Kay et al., 2011, p: 528).

Their novel approach revealed that employers refused to hire or retain people with disabilities because of the (1) the perceived expense of accommodating them, (2) poor awareness as to how to manage them, and (3) the fear of litigation (Kay et al., 2011). In sum, the findings were contrary to the positive observations originally discovered.

The methodological improvements by Kaye et al. (2011) supports concerns of social desirability and self-section biases in surveys. For instance, to avoid social stigma, there might be discrepancies between the attitudes that employers express about hiring people with disabilities and their genuine hiring efforts (Wilgosh and Skaret, 1987; Schur et al., 2013). In addition, employers may fail to respond or are excluded from the sample because they are resistant to disability as a social category (Kaye et al., 2011; Schur et al,

2013; Ameri et al., forthcoming). These problems limit the value of measuring employer attitudes through surveys because they are not minimizing random differences between the sample of employers and realities of the workplace (Fowler, 2003).

Laboratory Research. Laboratory research has investigated employers' sensitivity toward disability by attempting to reproduce their behavioral reactions in a controlled environment (Weiner and Craighead, 2010). For example, laboratory experiments have explored disability and employment with the use of student participants, manipulated résumés, implicit association tests (IAT), and pre-recordings of disabled applicants who are seeking employment (Colella et al., 1998; Ren et al., 2008; Colella, 2001; Marti and Blanck, 2000). The various approaches ordinarily measured participants' traits as a function of their bias, and the evidence collectively found that able-bodied individuals were viewed more favorably (Wright, 1960; Czajka and DeNisi, 1988; Colella et al., 1998; Gouvier et al., 1991; Rickard, Triandes, and Patternson, 1983).

Colella, DeNisi, and Varma (1998), for instance, measured participants' attitudes toward dyslexic individuals by exploring how disability influenced performance expectations and job-fitness. In conditions of poor-fit, they found that hiring behavior is moderated by disability. Czajka and DeNisi (1988) equally addressed the differential treatment toward people with disabilities by using a laboratory experiment that determined whether performance standards moderated favorability ratings. The participants viewed pre-recorded videos of workers with and without disabilities, and evidence showed that disabled workers were rated fairly when stereotype-consistent performance standards were not factored. However, upon taking them into account, positive judgments fell considerably. Here, the use of performance standards that favor

able-bodied people produced outcomes of poor job-fitness in which disabled workers were perceived as less capable.

Similarly, the experimental design by Miceli, Harvey, and Buckley (2001) found that disability moderated interview intent when it became apparent to participants. They operationalized disability by having testers either use a wheelchair or disclose that they are HIV-positive during the interview segment of the lab. The lab participants viewed a prerecorded video in which interviewees discussed their experience, as well as their disability and its influence on work output.[7] Overall, Miceli and colleagues (2001) discovered that demonstrations of high ability resulted in favorable evaluations by participants, whereas low ability produced unfavorable ones. However, the interaction between disability and interview performance apparently moderated perceptions of job-fitness. That is, participants disregarded the high-performance of applicants who use a wheelchair or are HIV-positive, and judged them according to their personal bias toward disability.

Other laboratory schemes that can measure discrimination include the Implicit Association Test (IAT), a tool that measures one's subconscious beliefs (Greenwald, McGhee, and Schwartz, 1998; Wilson and Scior, 2014). Here, the rapidness of an association that participants intuitively make between people with disabilities and words like *inferiority* predicts negative behavior toward their job seeking efforts (Lane, Benaji, Nosek, and Greenwald, 2007; Bertrand and Duflo, 2016). Research that has used IATs found that implicit attitudes were stronger predictors of behavior (Wilson and Scior,

[7] The lab participants were conditioned to believe that their hypothetical business was seeking a public accountant. Like the arguments made in Ameri et al (forthcoming), it is reasoned here that qualified people with disabilities can perform the duties of an accountant because it does not demand physical strength relative to other manual jobs (Miceli et al., 2001).

2014; Greenwald, Poehlman, Uhlmann, and Banaji, 2009). Implicit attitudes appear to influence behavior that is not consciously controllable (e.g., making eye contact, distancing oneself, the use of body language generally). Regarding employment, it could moderate the perceived warmth and competence of applicants with disabilities, factors that are necessary in determining their job-fitness (Dovidio, Kawakami, and Gaertner, 2002).

For example, a meta-analysis by Wilson and Scior (2014) examined several IAT studies, which included subconscious beliefs toward people with physical disabilities, intellectual disabilities, and others. Regarding the thirteen studies that specifically measured beliefs about physical disabilities, Wilson and Scior (2014) identified moderate-to-strong negative implicit attitudes. In total, the results found that able-bodied individuals preferred being among those who are like themselves.

Interestingly, Wilson and Scior (2014) also examined the degree of contact participants had with disability, and, overall, they found that regular contact with disabled individuals improved participant attitudes toward them (e.g., Pruett and Chan, 2006). The evidence corresponds with Thurneck (2008) who discovered that contact may play a role in implicit attitudes during childhood.[8] Here, the longitudinal study examined children's perception of disability in inclusive and non-inclusive classrooms. The comparisons showed that implicit attitudes of able-bodied children in inclusive classrooms were more positive toward people with disabilities, while those in non-inclusive classrooms were more negative (Allport, 1954; Lemm, 2006; Aberson and Haag, 2007; Wilson and Scior, 2014).

[8] It should be noted that the results were not significant in Thurneck (2008).

Regarding the implicit attitudes toward people with intellectual disabilities, studies also found negative feelings among able-bodied respondents. Like the physical disabilities described above, the more contact participants had with the intellectually disabled, the more positive their feelings were. For example, Enea-Drapeau, Carlier, and Huguet (2012) found that repeated interactions between people with and without Down Syndrome resulted in fewer negative implicit attitudes toward disability. However, Hein, Grumm, and Fingerle (2011) found that contact did not mediate implicit attitudes toward people with intellectual disabilities, which raise concerns about how scholars interpret the unconscious mind. Specifically, do lab-based experiments about implicit attitudes indicate behavior? Do implicit attitudes reflect something beyond a psychological process? Critics of the IAT have questioned whether this approach identifies discrimination or perhaps some "raw psychological material" that may be later converted to reflect prejudice (Bertrand and Duflo, 2016, p: 33). A principal issue of this lab-based approach is that someone can explicitly feel that they are not biased toward people with disabilities, but have an IAT demonstrate otherwise (Wilson and Scior, 2014). However, the role of IATs is still compelling to social psychologists because the empirical evidence supports concepts like Priming and Stereotype Suppression that are predicted to influence behavior (Fiske and Taylor, 2016).

Apart from implicit attitudes, laboratory research has found positive and negative outcomes for people with disabilities generally (Ren et al., 2008). However, in the context of human resource judgements, lab-based studies found more favorable outcomes (Colella and Stone, 2005) than other research designs (e.g., field experimentation) where discrimination toward people with disabilities is widespread (Colella and Varma, 2001).

Evidence that has identified more positive outcomes regarding disability and employment should thus be studied carefully (Colella and Stone, 2005). That is, lab-based research possesses some constraints in its application, to the extent that scholars question if the behavior documented in labs indicates behavior outside of it (Levitt and List, 2008).

There are valid criticisms that labs are one-dimensional, bound by controls, artificial by design, and more indicative of individual attitudes compared to the prevalent culture (Bertrand and Duflo, 2016). Regarding the workplace, Fritzche and Brannick (2002) asserted that labs are unrepresentative of employer behavior that are naturally-occurring because the artificiality of its setting, stimuli, and participants create overstated pro-social behavior (Barr and Hitt, 1986). For example, participants may exhibit the norm of kindness that prohibits them from behaving offensively toward people with disabilities (Hastorf, Northcraft, and Picciotto, 1979; Colella et al., 1998; Bell and Klein, 2001). In this case, if a participant makes the "moral" choice not to discriminate, it is likely insincere and unreliable (Levitt and List, 2008). That is, "doing the right thing" versus doing what is natural is a function of being watched by others (Levitt and List, 2008, p: 3).

Interview outcomes that are conducted in a lab are apparently susceptible to social desirability bias, as evidenced by Nordstrom, Huffaker, and Williams (1998) who examined the role of applicant traits on hiring behavior. Here, participants with a background in recruitment assumed the role of a human resource practitioner, and were tasked with evaluating qualified applicants for an administrative role.[9] To accurately

[9] One of the primary job duties included constant contact with students, staff, and faculty (Nordstrom et al., 1998). According to the literature on disability, people with disabilities are disadvantaged in highly visible jobs because customers and clients are generally not willing to greatly communicate with them (Schur et al., 2013).

determine job-fitness, participants were offered résumés, cover letters, and two letters of endorsement. The applicants were represented through a prerecorded video, and they were either seated in a wheelchair or not while speaking to an interviewer.[10] Overall, the results found that applicants with disabilities received higher approval ratings on hiring- and salary-intent than applicants without disabilities. Furthermore, the participants were more tolerant of a poor interview by disabled job applicants than by able-bodied applicants. The findings indicated that the elevated ratings for people with disabilities was likely due to social desirability bias. In other words, participants were aware that their behavior was being scrutinized by the examiner, therefore, they may have felt obligated to behave accordingly (Levitt and List, 2008; Schultz, 1969; Pierce, 1908; Orne, 1962). This one-sided "superior-subordinate" relationship is comparative to "parent and child, physician and patient, or drill sergeant and trainee" (Schultz, 1969, p: 221). It was originally cautioned by Pierce (1908) who predicted that:

> It is to the highest degree probable that the subject['s] …general attitude of mind is that of ready complacency and cheerful willingness to assist the investigator in every possible way by reporting to him those very things which he is most eager to find, and that the very questions of the experimenter …suggest the shade of reply expected …Indeed …it seems too often as if the subject were now regarded as a stupid automaton (p: 3).

Consequently, behavior is restrained in labs by moral concerns that are uneven with behavior in natural environments (Levitt and List, 2008).

Regarding disability, the inconsistencies that are identified in lab-based evidence raise questions about how it should be interpreted. It appears that lab experiments may produce results that are non-generalizable. For example, Colella and Varma (1999)

[10] In addition to the application materials and video segment, other stimulus materials were offered to the participants for them to measure job-fitness that includes the hypothetical company's business philosophy that reflected EEOC guidelines, and a description of the job itself (Nordstrom et al., 1998).

found participant evaluations were not motivated by disability, whereas Russell, Spicer, Miller, Albrecht, and Rose (1985) found the opposite under identical performance measures. According to Levitt and List (2008), inconsistent results exist because:

> …the choices that individuals make depend not just on financial implications, but also on the nature and degree of others' scrutiny, the particular context in which a decision is embedded, and the manner in which participants are selected to participate (p: 42).

Rohmer and Louvet (2012) found that the mixed stereotype content toward people with disabilities that were observed using explicit measures of warmth and competence were not equally reproduced by using implicit ones that reflected real attitudes. That is, self-reported attitudes were not consistent with implicit ones that were inferred from speed categorization tasks which measured the reaction time to encountering disability (Gawronski and De Houwer, 2014). The issue about explicit measures is consistent with the literature that found stereotypes toward workers with disabilities included mixed attributions of competence and warmth, namely high-warmth but low-competence (Fiske et al., 2002). The variation is found to incite pity (Cuddy, Fiske, and Glick, 2007), however, contradictory evidence through implicit measures discovered that participants may have exhibited socially desired responses (Rohmer and Louvet, 2012). Participants appeared to have less control of themselves, and the implicit measures of stereotype content revealed unfavorable judgements in both warmth and competence (i.e., contempt) (Rohmer and Louvey, 2012). Is it possible that laboratory participants are especially unwilling to express unfavorable evaluations of people with disabilities, to conform with social norms of sympathy and kindness? If scholars are to believe that people with disabilities are normatively safeguarded, it would explain the discrepancies cited above

(Rohmer and Louvet, 2012; Peris, Teachman, and Nosek, 2008; Fazio and Olson, 2003; Carlsson and Björklund, 2010).

There are several qualities of the lab-based approach that must be considered before generalizing results to the labor market (Levitt and List, 2007). These features include composition, representativeness, and context:

(1) *Composition.* Laboratory participants tend to include those who do not share the same stakes as employers do, namely generating revenue, ensuring productivity, eliminating costs, and the like (Czajka and DeNisi, 1988; Colella et al., 1998). For example, Czajka and DeNisi (1988) acknowledged that the issue of generalizability may have weakened their laboratory findings because participants differed from employers. Unlike employers, there were no direct consequences for their lab participants (Ren et al., 2008). Also, because there were no direct implications or personal consequences, response bias—i.e., abnormally high pro-social behavior—apparently concealed their prejudice, thereby offering little to no guidance about how real decisions are made at work (Stone, Stone, and Dipboye, 1992; Levitt and List, 2007). However, in studies where outcomes mattered and participants were greatly invested, discrimination became evident (Stone and Michaels, 1993, 1994; Colella et al., 1998). Relative to employers who are required to make important decisions about hiring and labor relations generally (Levitt and List, 2008), it appears that the stakes are lower in labs, unless addressed otherwise.

(2) *Representativeness.* The more representative a sample is, the more reliable the data become. Lab participants mostly include students who are likely unfamiliar with antidiscrimination policy and legislation. Participants who are not trained in management

may be inclined to deny qualified disabled applicants without understanding the unfairness or legal consequences of doing so. The problem of external validity is explicitly addressed in Colella and colleagues (1998) where students were first trained to calculate reasonable workplace accommodations before determining job-fitness. Had this preparation not occurred, hiring behavior would have been misleading. This is not to suggest that lab participants are ignorant *per se*, however, they are not commonly trained in human resource management or the law.

Also, social psychologists assert that, because lab-based experiments are typically conducted using students, there is the risk of self-selection (Levitt and List, 2007). As Rosenthal and Rosnow (1969) noted, labs are largely the science of "punctual college sophomore" volunteers (pp: 136-137) who are either intrigued by the subject matter or cooperate with the researcher by pursuing social approval (Orne, 1962; Levitt and List, 2007). Therefore, it is very possible that student participants exhibit an exaggerated pro-social behavior unlike what naturally occurs in the field.

(3) *Context.* The conditions in which experiments take place influence participants' judgments (Ren et al., 2008). That is, human behavior is influenced by the environment that includes a "complex set of relational situations, social norms, frames, past experiences, and the lessons gleamed from those experiences" (Levitt and List, 2007, p: 162). Regarding hiring behavior specifically, labs cannot perfectly mirror all the qualities that occur at work. Although mimicking the field would greatly increase generalizability, it is just not practical to do so. Consequently, laboratory experiments can be more misleading in determining the effect of disability, whereas other research designs may be less subject to distortion.

Furthermore, hiring behavior is mediated by the environment (Bertrand and Duflo, 2016), and if it does not induce a sense of realism, participants' responses will likely reflect that falseness. Ren, Paetzold, and Colella (2008) demonstrated this point by finding that the effect of disability on performance evaluations and hiring outcomes were weaker in a lab that does not adequately resemble the workplace. The lack of authenticity may influence participants' cognition, as evidenced by a comparative study between Bailey and Bullimore (1991) and Gibbons, Stephan, Stephanson, and Petty (1980). Both studies found that disabilities moderated hiring behavior, however, Bailey and Bullimore (1991) identified higher favorability ratings toward applicants who use a wheelchair. There appears to be an important difference between interacting with disability virtually, as in the experiments by Gibbons and colleagues (1980), versus directly interacting with it. In fact, Bailey and Bullimore (1991) found that being proximal to an applicant in a wheelchair and observing them in real-time enhanced the experiment to where participants described the interview process as more authentic. Here, participants felt at ease because they personally interacted with the applicant in a wheelchair that caused sympathetic reactions.

Overall, the purpose of a lab is not to determine what does happen in the workplace, but what can happen through a highly-controlled, simulated setting in which the effect of disability is measured. As most scholars would agree, and as Levitt and List (2008) described, "…in the typical lab experiment, subjects enter an environment in which they are keenly aware that their behavior is being monitored, recorded, and subsequently scrutinized" (p:158). Therefore, the context of a lab should be carefully

designed, so that it may offer "qualitative insights" to human behavior (Levitt and List, 2008, p: 171).

Although this segment has been critical of laboratory research, it is nonetheless useful for generating qualitative insights about human behavior (Levitt and List, 2008). That is, social psychologists believe laboratory experiments should not be intended to find behavioral symmetries between simulations and naturally-occurring environments (Ross, Nisbett, and Gladwell, 2011). That would be unreasonable because, as evidenced by the Hawthorne studies, lab participants can alter their behavior upon observation, perhaps in favor of the experimenter and their hypothesis (Adair, 1984). Levitt and List (2008) support this idea by citing that, "…the role obligations inherent in being an experimental subject are completely absent in any important markets…" (p: 13). Labs should instead be designed to determine whether the experimental context and the procedures essential to it systematically incite a specified behavior (Levitt and List, 2008). Drawing strong inferences that concern identical individuals in naturally-occurring environments must then be avoided because laboratory experiments, in the context of labor market discrimination, can only exist as a complement to, not a substitute for field experiments.

Goldberg Paradigm experiments are an excellent example of how labs can help complement field-based research that examines labor market discrimination (List, 2004). This approach includes participants who evaluate identically written articles authored by two hypothetical individuals who, aside from the variable of interest (e.g., disability), appear equal (Goldberg, 1968). In Goldberg (1968) the experimental design found evidence of discrimination where, regarding gender, female authors received poorer

ratings than their male equivalent, unless the subject matter corresponded with femininity. The experimental design has been commonly used to measure gender and leadership, however, it can be also operationalized in other areas that include disability and employment. For instance, participants can review the résumés and cover letters of hypothetical job applicants (with and without disabilities) relative to a job description, and determine job-fitness. Although this research may be less relevant by itself because the environment is simulated, and participants' reactions to job-fitness are not as representative, it can, however, be complementary to field research by strengthening theories of human behavior (Levitt and List, 2008; Bertrand and Duflo, 2016; Ren et al., 2008).

In sum, the constraints around labs strongly indicate the value of a more reliable approach to measuring discrimination, one with fewer objections to its realism (or lack thereof) (Ren et al., 2008; Bertrand and Duflo, 2016). Scholars should first have an adequate understanding of laboratory results—via a theoretical framework—then enter the field for further testing (or the inverse) (Levitt and List, 2008). Field experimentation can thus address the constraints of labs for reasons that are described in the following segment.

Field Experimentation. Field studies are a response to the inherent weakness of other research methods that tried to identify discrimination (Neumark, 2012). They rely on naturally occurring environments, mainly real participants who treat people of a protected class unfavorably (Yinger, 1998).[11] Field studies are unlike their laboratory

[11] See: Bertrand and Mullainathan (2004); Edelman, Luca, and Svirsky (2016); Boo and Trako (2009); Ravaud, Madiot, and Ville (1992); Pager (2003); Laham, Koval, and Alter (2012); Baert (2014); King and Ahmad (2010); and Bertrand and Duflo (2016).

equivalents because they do not test hypotheses in an artificial and highly controlled setting. Group differences in outcomes—for example, people with disabilities receiving fewer callbacks than those without disabilities—are observed in true-life contexts instead of simulated ones (Neumark, 2012). According to Fix and Struyk (1993), the technique requires that:

> Two individuals (auditor and testers) are matched for all personal characteristics other than the one that is presumed to lead to discrimination, e.g., race, ethnicity, gender. They may apply for a job, a housing unit, or a mortgage, or begin to negotiate for a good or service. The results they achieve and the treatment they receive in the transaction are closely observed, documented, and analyzed to determine if the outcomes reveal patterns of differential treatment on the basis of the trait studied and/or protected by anti-discrimination laws… (p: 1)

In other words, these studies create hypothetical persons where differences are removed, except for their group affiliation that is the variable of interest. Whether the method involves testers who are trained to act identically, with accompanying portfolios that add to their likeness, or includes "paper persons" that are portrayed by résumés of equal quality, field research can arguably control for unobserved differences between groups (Neumark, 2012). Furthermore, field research controls for the extraneous variables that are characteristic of laboratory research, which gives it greater external validity (Cook and Campbell, 1979). It is thus becoming the preferred method to test for discrimination in employment.

Field experimentation originally began with the audit approach (Newman, 1978; Fix and Struyk, 1993). A seminal example of it includes the work by Aryes and Sieglman (1995) where two pairs of testers—comprising of either white men and women, or white men and Blacks generally—negotiated the price of a vehicle at 153 randomly-chosen dealerships. Participants included equally attractive testers who memorized a

bargaining script that advised them to choose a vehicle and negotiate over it. Testers in each pair bargained for the same vehicle, at the same dealership, several days apart. In total, participants haggled over 306 vehicles across these sites. It was discovered that white men were offered lower prices compared to white women. Furthermore, white men received better deals than identical black men and women.

In the context of labor market discrimination, Neumark, Bank, and Van Nort (1996) also enlisted testers to investigate any gender-related differences in service-oriented work. The research design included two pairs of men and women who applied for work as waitpersons in sixty-five restaurants. The male-female pairs were equally qualified and, apart from their sex, identical. The restaurants were apportioned into price categories (i.e., high, medium, and low) to identify the gender differences in callbacks between each pair. Overall, women were discriminated against in high-priced restaurants, but they were preferred in low-priced ones. That is, men received eleven callbacks from among the thirteen high-priced restaurants that were audited, whereas women received eight callbacks from among the ten low-priced restaurants audited. Furthermore, it was discovered that wages were greater in the high-priced restaurants, which suggests that the hiring discrepancy has implications for gender based differences in pay for waiting tables.

Pager (2003) applied the same approach in examining how the interaction effect between having a criminal record and race moderated hiring outcomes. The strategy included two pairs of blacks and whites. One member of each team was randomly assigned a criminal record, and this assignment was rotated between members to control for extraneous variables. That is, at some point, members of each pair played the role of

an ex-offender. Findings revealed that for black job applicants, those who were ex-offenders received fewer callbacks by employers than those who were not. In addition, equally skilled black applicants with a criminal record were approximately one-third as likely to receive a callback than black applicants without one. Lastly, black applicants without a criminal record were less likely to get a callback as compared to white applicants with one. Overall, the findings of the study revealed social stratifications where possessing a criminal record blocked employment opportunities, primarily for individuals of African descent.

In studying pregnancy and employment, Hebl, King, Glick, Singletary, and Kazama (2007) designed an audit experiment to determine whether the social norms around pregnancy swayed employer behavior (i.e., warm-heartedness), both from a hiring standpoint and a customer-based one. Female testers either wore a pregnancy prosthesis or not, and modeled themselves as job applicants in one phase of the experiment and customers in the other. Findings suggested that store employers were more hostile toward pregnant applicants, whereas they showed kindness toward pregnant customers. In accordance with Role Congruity theory (Eagly and Karau, 2002), pregnant job applicants encountered this aversion by employers because they were perceived as violating their social roles.

Martinez, White, Shapiro, and Hebl (2015) also enlisted testers to determine whether having a history of cancer moderated employability. The researchers randomly assigned an actor to play a job applicant who survived cancer by having them disclose a history of it during the interview. The applicant was randomly assigned to retail stores where he presented employers a full application that included a résumé. The résumés for

applicants with and without cancer were identical, and reflected a work background that was appropriate for sales associate positions. In the experimental condition, the résumé included this memo: "Please note: There is a gap in my employment because I was diagnosed and treated for cancer. I have been in remission for one year" (Martinez et al., 2015, p: 5). The applicant with cancer also wore a hat with "Cancer Survivor" printed on it. During the interview, applicants monitored their exchange with employers by evaluating passive harm behaviors (i.e., avoiding eye contact, snubbing, and being facetious). Dimensions rated on a seven-point Likert scale (*1= not at all, 7 = very much*) were used to determine employers' friendliness, eye contact, smiling, helpfulness, level of interest, comfort, nodding, rudeness, pursing lips, negative brow furrowing, hostility, and nervousness.[12] Overall, the applicant with cancer encountered more passive harm and, consequently, fewer callbacks by employers than the applicant without cancer.

In measuring bias toward homosexual job applicants, Hebl, Foster, Mannix and Dovidio (2002) recruited eight male and female actors who were advised to enter stores and ask for the manager. Like Martinez et al. (2015), the experimental condition included applicants who wore a hat on which "Gay and Proud" was printed at the front. In the nonexperimental condition, applicants wore a hat with "Texan and Proud" on it. The actors were otherwise identical, especially with the interactions made. That is, they were equally trained to make the following four inquiries: (1) "Do you have any job openings?"; (2) "Could I fill out an application?"; (3) "What sorts of things would I be doing if I worked here?"; and (4) "Would you mind if I used your bathroom?" (Hebl et

[12] For a review, see page 6 of the manuscript titled, "Selection BIAS: Stereotypes and Discrimination Related to Having a History of Cancer."

al., 2002, p: 818). Hebl and colleagues (2002) explained that the first two inquiries "…attempted to establish the individual as a job applicant and observe employers' formal reactions and receptivity," whereas the third inquiry:

> …was an attempt to extend the duration and depth of the interaction, thereby assessing interpersonal discrimination, such as conversation length, number of words exchanged, and employer negativity (p: 818).

And the fourth inquiry was designed to:

> …assess discrimination formally, by examining whether a personal courtesy, often based on store policy, would be granted differentially to a stigmatized versus a nonstigmatized applicant (p: 818).

To document the interactions with employers, applicants secretly voice recorded them. Their recordings helped Hebl and colleagues measure interpersonal discrimination and interaction length. Furthermore, the applicants completed questionnaires about their perceived negativity and employer interest. In total, results showed no differences in callbacks between homosexual and heterosexual applicants. However, employers terminated conversations more quickly, spoke fewer words generally, and expressed more discomfort nonverbally with gay and lesbian applicants compared to their heterosexual counterparts.

In studying stereotype-congruent behavior, List (2004) had trading card sellers transact with buyers to determine the moderating effect that minority status had on commercial transactions. It was found that experienced buyers who had limited information about minority sellers were reluctant to fairly bargain with them because they assumed these sellers were incompetent at trading. To confirm the findings, List (2004) performed a laboratory experiment with buyers using the Dictator Game, an activity of loaning money that included a "dictator" (i.e., the buyer) and a player who acted counter

to their social norms (i.e., the seller) (Guala and Mittone, 2010). List found that non-white males received as much money as their counterparts when buyers had more information about them. The results were unlikely due to taste-based discrimination but to statistical discrimination instead.

However, scholars are doing away with "live" testers and relying on "paper persons" in its place. This correspondence scheme has the advantage of generating exact comparisons across groups for information employers witness through résumés (Bertrand and Duflo, 2016). That is, observed differences are only triggered by the variables of interest. Like Ameri et al. (forthcoming), Bertrand and Mullainathan (2004) and others, researchers submit thousands of applications that are comprised of cover letters and résumés, with some of them including the minority trait in question (e.g., race, gender, disability, age, and the like) (Bertrand and Duflo, 2016). Expressions of employer interest are then measured through the callbacks received (Brown and Gay, 1985). There is one major advantage to the correspondence approach that includes linking discrimination closely to majority in-group decisions. That is, researchers can collect more observations with the use of "paper persons," thereby improving the external validity, accuracy, and segmentation of data (Bertrand and Duflo, 2016).

In studying the effects of race differences, Bertrand and Mullainathan (2004) pioneered the use of "paper persons" by submitting 5,000 résumés in response to 1,300 jobs in sales, customer service, and bookkeeping. The applicants were evenly assigned either white-sounding or black-sounding names (e.g., Emily Walsh and Lakisha Washington, respectively), while all other qualifications were made to be identical. In sum, employers showed a preference by race, in that white-sounding names received 50%

more interviews than black-sounding names. The correspondence approach in Bertrand and Mullainathan (2004) inspired many scholars throughout the world to explore labor market discrimination this way. For example, studies that made comparisons between white applicants and aboriginal ones in Peru (Galarza and Yamada, 2014); Tibetan and Mongolian applicants to Han applicants in China (Maurer-Fazio, 2012); white applicants and Chinese ones (Booth, Leigh, and Varganova, 2011); immigrant applicants and native ones in Belgium (Baert, Cockx, Gheyle, and Vandamme, 2013); and applicants with Irish-sounding names compared with non-Irish-sounding names (McGinnity, Nelson, Lunn, and Quinn, 2009), were all variants of the correspondence method in Bertrand and Mullainathan (2004).

The correspondence method that explored labor market discrimination by race and ethnicity is extensive. Work by Nunley, Pugh, Romero, and Seals (2014), for instance, found that employers rated black-sounding names more negatively compared to white-sounding ones. The hypothetical black applicants received 14% fewer callbacks than whites, even when the researchers controlled for productivity-limiting characteristics through résumés. In a similar Canadian study, Oreopoulos (2011) submitted 12,910 résumés in response to 3,225 job advertisements. The comparisons showed that applicants who were assigned an English-sounding name and attended university in Canada received more callbacks than foreign applicants who attended a Canadian university. In Germany, Kaas and Manger (2012) performed the same experiment but with Turkish-sounding names. They discovered that employers favored the German applicants over Turkish ones. The use of an endorsement letter, however, improved the

callback rate for Turkish applicants. This indicated that statistical discrimination occurred when employers only had résumés to work with.

Bertrand and Mullainathan (2004) originally established that the quality of one's portfolio may not lessen employer discrimination. In their study design that is described above, the quality of résumés varied by high and low experience. For example, the high-quality applicants had fewer gaps in employment, more work experience, a corresponding certification degree, foreign language proficiency, and received awards. Overall, white applicants with higher quality résumés received more callbacks than blacks, despite their identical work credentials. Although it is commonly expected that better credentials reduce employer anxieties, that was not the case here. This supports the idea that employers are cognitive misers, whereby they limit the capacity to process information about target applicants (Taylor, 1981). Bertrand and Mullainathan explained that:

> Employers receive so many résumés that they use quick heuristics in reading these résumés. One such heuristic could be to simply read no further when they see an African-American name. Thus they may never see the skills of African-American candidates and this could explain why skills are not rewarded. (p: 1011)

It suggests that the screening process is fundamentally flawed because employers stereotype for efficiency.

This assertion is confirmed by the methodological design in Ameri et al. (forthcoming). High- and low-experienced cover letters and résumés were divided evenly among hypothetical applicants who disclosed having no disability, spinal cord injury or Asperger's Syndrome. The result of submitting 6,016 applications revealed that employers were 26% less likely to respond to job applicants who disclosed a disability. In addition, there was a 34% lower likelihood of employer interest for experienced

applicants with disabilities compared to those without disabilities, which discredited the idea that increased training and qualifications and a successful labor market experience would help erase disadvantages commonly endured. The results also indicated that disability gaps in employer interest were especially large among small employers who had fewer than 15 employees and were therefore not provisioned by the ADA.

Ravaud, Madiot, and Ville (1992) used a similar approach to disability and employment. They found that disclosing a disability resulted in fewer callbacks. In this study of 2,228 French employers, the intersection between qualification and paraplegia had adverse effects on employer interest. That is, the highly-qualified applicants without disabilities were 1.78 times more likely than paraplegic applicants with identical work characteristics to have received positive responses from employers. Furthermore, moderately qualified applicants without disabilities were 3.2 times more likely than their counterparts to have received a positive response (Ravaud et al., 1992). In Belgium, Baert (2014) equally explored disability and employment by submitting résumés in response to 768 job openings where disability was not expected to lower productivity. The hypothetical applicants disclosed that they lived with blindness, deafness, autism or no disability, and, overall, the employer response rate was 47% lower for applicants with disabilities.

Regarding gender discrimination, Carlsson (2011) submitted applications on behalf of hypothetical men and women for positions in IT, transportation, construction, sales, education, hospitality, accounting, service, and healthcare. In short, women received more callbacks than men generally, though men had a small advantage over women in occupations that are empirically male dominant. Booth and Leigh (2010) used

the same correspondence approach and equally found that, among female dominant jobs, women received greater callbacks overall.

Hypothetical persons have also been used to examine the moderating effect religion had on hiring. In an Indian study, Banerjee, Bertrand, Datta, and Mullainathan (2009) submitted 3,160 hypothetical résumés in response to 371 software and call center job openings. Surnames were modified to reflect the applicants' social class and religion. Overall, Banerjee and colleagues (2009) found no evidence of discrimination toward Muslims. Moreover, findings around software jobs indicated no evidence of discrimination toward applicants of lower status. However, among the call center jobs, there were significant differences that indicated a preference for upper-class applicants. A U.S. study by Wright, Wallace, Bailey, and Hyde (2013) further explored religion's impact on hiring by having hypothetical job applicants disclose their religion using extracurricular activities on their résumés. Relative to applicants who did not disclose any religious affiliation, Muslims were 33% less likely to get a callback. In studying the stereotype content models of prejudice, King and Ahmad (2010) also examined religious discrimination in the labor market by having two pairs of testers dressed in Muslim-identified and nonreligious outfits (respectively) apply for work in retail businesses. Overall, callbacks did not vary by religion, though interactions were shorter for Muslim applicants than for the non-religious ones.

In determining whether the unemployed struggle with workplace reentry, Eriksson, and Rooth (2014) found that hypothetical applicants with long-term unemployment did receive callbacks by employers, but only if their résumés demonstrated work experience afterward. However, when applications were modified to

convey long-term unemployment that was recent, precisely nine-months prior to applying for the new job, callbacks dropped by 20%. In a relevant field study, Ghayad (2013) found that unemployment beyond six months had adverse effects on subsequent job search endeavors. Overall, there was a reduction in callbacks by 1.13 percentage points for each month of not working. At six months of unemployment, the callback rate decreased by an added 8 percentage points.

The correspondence approach has also been used in examining discrimination by age and attractiveness, respectively. Regarding age, hypothetical young job applicants were favored over older applicants (Ahmed, Anderson, and Hammerstedt, 2013). Regarding attractiveness, Rooth (2009) explored how obesity influenced callback rates for both men and women. They found that overweight men collected fewer expressions of employer interest than men who are fit. These results were similar for overweight women. Patacchini, Ragusa, and Zenou (2012) examined how attractiveness moderated perceived job-fitness by manipulating headshot photographs that reflected job applicants as obese. All other traits were otherwise identical for applicants who were depicted as healthy. The researchers discovered a beauty premium for women, but not for men, and that premium disappeared among attractive women with great work expertise. This evidence is consistent with studies that found a penalty for not being attractive (Hamermesh and Biddle, 1994).

Field researchers have examined the moderating effect that sexual orientation had on callbacks as well. In Tilcsik (2011), pairs of hypothetical applicants submitted résumés in response to 1,769 job postings across seven states in the U.S., with one applicant in each pair signaling their sexual orientation through a gay organizational

group affiliation. The evidence showed that gay applicants were more likely to be discriminated against compared to heterosexual applicants. This was especially the case for those applicants who applied to firms where employers stressed the need for male-heterosexual qualities. In addition, the results varied from state to state, indicating regional differences in attitudes and antidiscrimination laws.

A Swedish study by Ahmed, Anderson, and Hammerstedt (2013) also used the correspondence approach to test for effects of homosexuality, however, their hypothetical applicants used cover letters to convey sexual orientation by naming a spouse. In addition, cover letters noted volunteer work in an LGBTQ+ rights organization or the Red Cross that was intended to signal homosexual and heterosexual identities (respectively). These applicants applied to male-, female-, and neutral-occupations, and, overall, there was evidence of discrimination. However, their findings were likely spurious because the group affiliations that were chosen may not have signaled homosexual and heterosexual identities. That is, volunteering for LGBTQ+ rights in comparison with the Red Cross may not have revealed one's sexual orientation, but their political preference instead.

Patacchini and colleagues (2012) closely simulated the method above by administering an experiment in Italy where hypothetical applicants indicated their sexual preference through pro-LGBTQ+ support groups. Their findings revealed that gay job applicants were discriminated against, but not lesbians. Opposing field evidence by Bailey, Wallace, and Wright (2013) found that gay and lesbian applicants were equally not discriminated against—findings that are consistent with Hebl et al. (2002).

The growth in technology has demanded that field researchers graduate from using "paper persons" to "digital persons." Employers can readily find information about a job applicant through social networking websites like "LinkedIn," therefore, the correspondence method has integrated this platform by creating portfolios that publically reflected work expertise and more (Bertrand and Duflo, 2016). For instance, Acquisti and Fong (2013) submitted résumés in response to over 4,000 job postings in a studying hiring discrimination. They created work profiles using social networking for employers to refer to, in addition to social media profiles that included personal photographs. Their online presence made the hypothetical applicants appear as Muslim or Christian and straight or gay. Overall, it was discovered that not many employers used social media to access more information about the applicants. The investigators used Google AdWords and LinkedIn Premiere that populated statistics about the number of profile visits that employers made. Although the results were not statistically significant, applicants who practiced Christianity received more callbacks (12.6%) than those that practiced Islam (10.9%). Moreover, homosexual applicants received an equal proportion of callbacks by employers as their heterosexual equivalents. In sum, operating social media to determine job search outcomes for minorities is but one example in which researchers can move beyond manipulating résumés and cover letters to demonstrate religious preference, sexual orientation, disability, and the like because it is uncommon and, perhaps, unfitting to do so on résumés.

Lastly, the utility of field experiments in a digital era is not strictly limited to the areas covered above. Correspondence studies that explored rental markets of the sharing economy have also found evidence of discrimination that may not be clearly identified in

other research settings (Edelman et al., 2016). For example, Ameri, Rogers, Schur, and Kruse (manuscript in preparation) found that travelers with disabilities were less likely to be offered lodging and more likely to be rejected overall than otherwise identical travelers without disabilities. With the use of hypothetical travelers and a hospitality company's online marketplace, Ameri and colleagues made 3,847 lodging requests throughout the 48 continental U.S. states to independently contracted hosts and measured the host responses. For each request, the travelers self-disclosed either blindness, cerebral palsy, dwarfism, spinal cord injury, or no disability. To control for race and age, and ensure that the disability types were recognized, the traveler profiles included licensed stock images of white men in their twenties with and without disabilities. Email addresses and telephone numbers were also assigned to the user accounts for added verification. To obtain the preferred sample size and avoid any exposure through "browser fingerprinting"—the process that detects clients who are in violation of a user agreement—twenty-five user accounts were made. The accounts were then clustered into five groups that were assigned to each of the five U.S. regions. That is, each group included travelers with blindness, cerebral palsy, dwarfism, spinal cord injury, and no disability. The groups inquired about lodging only in the region that was assigned to them, and alternated inquiries from state to state every week, for 24 weeks. Only the travelers with disabilities requested a reasonable accommodation to access their preferred unit, something that is customarily available at more legitimate hotel establishments. Overall, the approval rate was 75% for guests without disabilities, 61% for guests with dwarfism, 50% for guests with blindness, 43% for guests with cerebral palsy, and 25% for guests with spinal cord injury. Interestingly, hosts who advertised their listing as

"wheelchair accessible" were more likely to approve a guest without a disability (80%) than a guest with a spinal cord injury (60%). The findings questioned the relevance of ADA legislation and the accessibility of public accommodations in the sharing economy generally.

Field studies are not flawless (Heckman, 1998; Heckman and Siegelman, 1993). Regarding the audit approach of field experimentation, test pairs must be indistinguishable in all visible dimensions (e.g., height, hair, age, attire, and the like). Unless the testers are doppelgangers, that is not easily accomplished (Bertrand and Duflo, 2016). Moreover, test pairs must be trained to act identically, which is equally difficult to achieve (Bertrand and Duflo, 2016). One other disadvantage to the audit approach is the double-blind issue. That is, testers who are made aware of the experiment might be consciously or subconsciously conditioned to create data that supports (or refutes) the hypothesis. In addition, there might be a demand effect between testers that invokes a sense of loyalty to the study, thereby resulting in false data. Indeed, testers are not actually job hunting for themselves, so their beliefs are likely to motivate interview outcomes (Bertrand and Duflo, 2016). Hebl et al. (2002) and Martinez et al., (2015) controlled for this flaw by assigning testers into the experimental condition or nonexperimental condition without them knowing. They were instructed not to observe their stigmatizing or non-stigmatizing hats. Furthermore, to avoid their reflections, testers were advised not to face any mirrors or window displays. Intricate measures like these avoid the limitations cited above, however, they are primarily the reason why field research has evolved to become correspondence-based.

This is not to suggest that the correspondence approach of field experimentation is impervious to methodological flaws. Whereas the correspondence approach helps researchers acquire the average differences in hiring by randomly applying to thousands of jobs for "Bradley Schmidt," the *real* Bradley Schmidt is not doing this. The real Bradley is more strategic in his job search. He avoids labor market discrimination by censoring attributes of himself that are socially denigrated (Heckman and Siegelman, 1993; Bertrand and Duflo, 2016).

Furthermore, correspondence studies usually concentrate on entry level jobs and generalize the findings accordingly. According to Bertrand and Duflo (2016), discrimination that is measured across junior-level jobs does not inform us about senior-level ones. As a result, employers are likely to evaluate novice applicants differently from expert applicants (Ameri et al., forthcoming). The issue of generalizability can also be applied to correspondence studies that measure disability and employment within occupations that people with disabilities do not typically apply to (Ameri et al., forthcoming).

In addition, correspondence studies cannot measure beyond the callbacks received to evaluate discrimination further. That is, hypothetical applicants are unable to participate in the subsequent stages of the hiring process (i.e., interview, job-offer, wage-negotiating), and are thus incapable of offering more insight on employment and discrimination (Bertrand and Mullainathan, 2016). Audit studies can probably measure these steps, though it could be perceived as unethical by an Institutional Review Board (IRB).

Lastly, regarding principles of informed consent and debriefing, it can be argued that correspondence studies—as well as audit studies—are morally questionable because employers are not cognizant of the duplicity that is embedded in the job hunt (Bertrand and Duflo, 2016; Neumark, 2012). An employer's time should be appreciated (List, 2009). Nevertheless, the limitations of other research schemes that measure discrimination justifies using field research (List, 2009). There are societal benefits that compensate for any investment employers make to determine if legislation, work policies, and more are operating properly (or not) (List, 2009). A lack of disclosure or informed consent is therefore necessary and defensible (List, 2009).

The realism that is offered by field research appears to influence the judgments of its target employers (Dion and Stein, 1978; Dipboye, Fromkin, and Wiback, 1975; Rose and Brief, 1979; Berschied and Walster, 1974). Considering this realism, it seems that judgments become more negative as employers reflect their true attitudes about sameness in the workplace (Ravaud et al., 1992; Baert, 2014; Ameri et al., forthcoming; Bertrand and Duflo, 2016). This category of research can operationalize disability in naturally occurring environments where scholars can largely identify if it moderates employers' perception around job-fitness. The use of qualified hypothetical applicants with disabilities can thus effectively reveal genuine employer responses (Neumark, 2012).

In sum, field studies that measured all sorts of populations have generally mimicked Bertrand and Mullainathan (2004). In other words, the theoretical reasoning applied to labor market discrimination is usually statistical discrimination or taste-based. Although field studies have discovered that the absence of information about job applicants likely provoked hiring discrimination (Bartoš, Bauer, Chytilová, and Matějka,

2013), none have greatly explored the socio-cognitive factors that cause it (Bertrand and Duflo, 2016). This study explored *why* differential treatment occurs (if at all) through social cognition theory. Furthermore, because the correspondence method, despite its sophistication, cannot directly test social cognition by using "paper persons," complementary lab experiments were used to support the data (Hebl et al., 2007; Martinez et al., 2015; Bertrand and Duflo, 2016). Both research designs have strengths and weaknesses, therefore, a combination of the two provided deeper insights to hiring behavior (Levitt and List, 2008).

5. Hypotheses that are Applied to Field and Laboratory Experimentations.

Based on the empirical evidence that finds people with disabilities often encounter labor market discrimination, the first hypothesis is that:

> **Research Hypothesis 1 (Field and Lab).** *People with disabilities are less likely than those without disabilities to receive expression of employer interest in response to job applications.*

Research on disability should account for other characteristics that help individuate people with disabilities to determine if discrimination persists. Education, for example, can be a signal of qualification to employers that helps overcome the disadvantages of disability. According to Dual Processing theory, education should counteract stereotypes that are associated with disability. That is, when employers consider applicants' education, determining job-fitness will be more deliberate. This thoughtfulness signifies objective reasoning that occurs in System 2, which contrasts the intuitive reasoning occurring in System 1 (Chen, Duckworth, and Chaiken, 1999).

Education is a vital component for individuals to secure better jobs, earn higher wages, and become more involved with their surrounding community (Hollenback and Kimmel, 2008). Historically, people with disabilities have been excluded from acquiring levels of education that would qualify them for job advancement (Schur et al., 2013). While education is indisputably valuable for everyone, it is especially beneficial to people with disabilities. Employers who encounter accomplished applicants with disabilities may rely on their data-driven cognition in determining job-fitness. Here, education mediates hiring behavior that is deliberate (Fiske and Taylor, 1991; Council of Economic Advisors, 2011, pp: 69-77; Schur et al., 2013; Goldin and Katz, 2008). Therefore, it will enhance the impressions of people with disabilities by overcoming simplified stereotypical perceptions (i.e., through System 1) (Fiske and Taylor, 1991).

Higher qualifications should, therefore, help overcome the obstacles people with disabilities often encounter to secure a job. It is entirely possible that employers would be more willing to hire qualified people with disabilities who have a proven track record. Therefore, the study will test whether the intersection of qualification and disability produces varied expressions of employer interest:

> **Research Hypothesis 2 (Field).** *There will be a smaller gap in employer interest between people with and without disabilities among applicants with higher qualifications than among applicants with lower qualifications.*

The evidence on employment has found that people with disabilities are not adequately represented in high-skill occupations (Barnes and Mercer, 2005). In fact, workers with disabilities, relative to those without disabilities, tend to occupy low-skill occupations (Blanck et al., 2000; Blanck et al., 2002; Barnes and Mercer, 2005).

According to Oliver (1983), the Medical Model of disability has encouraged employers to believe that life with an impairment must be limiting. It has caused the disabled community to be socio-economically disadvantaged because they are perceived as less capable than their nondisabled peers (Blanck et al., 2000; Barnes and Mercer, 2005; Gleeson, 1999; Oliver, 1990; Russell, 1998; Finkelstein, 1980). Consequently, workers with disabilities are more likely to occupy low-skilled jobs than high-skilled ones (Kruse et al., 2010). Although their job outcomes have improved since the mid-1980s, a large proportion continue to work in low-skilled jobs (Burchardt, 2000; Martin, White, and Meltzer, 1989). For example, women with disabilities are highly concentrated in clerical jobs and service work that are socially remote and paid poorly (Jolly, 2000; Meager, Bates, Dench, Honey, and Williams, 1998). Should people with disabilities only contribute to their livelihood by working in low-skilled jobs that are unchallenging? Employers apparently think so. That is, according to Role Congruity theory, employers may refuse people with disabilities who seek employment in high-skill jobs because it violates social role expectations of their competence, thereby causing cognitive dissonance. Considering that people with disabilities are mostly low-skilled workers (Barnes and Mercer, 2005; Blanck et al., 2000; Schur et al., 2013; Blanck et al., 2002), the study hypothesizes that:

> **Research Hypothesis 3 (Field).** *There will be a smaller gap in employer interest between people with and without disabilities in the low-skill occupation than in the high-skill occupation.*

One of the key findings of Ameri et al. (forthcoming) was that the ADA, which bans discrimination toward people with disabilities, lessened employer bias. According

to the evidence, the disinterest toward disabled workers was most pronounced in workplaces with fewer than 15 employees (i.e., small-sized businesses). These "small-sized" businesses were not covered by the ADA, which suggested a positive effect of the law between medium- and larger-sized firms, as well as legal discrimination by smaller firms, on the hiring of people with disabilities (Ameri et al., forthcoming).

The survey evidence by Dixon and colleagues (2003) found that firm size influenced the likelihood employers had people with disabilities on staff. For example, 42% of employers with 25 or more employees reported that they had at least one worker with a physical or mental disability, compared to 20% of employers with five to 24 employees. A U.S. Government-sponsored survey equally found that larger firms were more likely to actively recruit people with disabilities (33.8%) than smaller companies (7.8%) (CESSI, 2008). Legislation like the ADA may initially force larger employers to begrudgingly hire people with disabilities, though it is possible that continued exposure can mitigate the concerns motivated by intuitive thinking (i.e., System 1), including costs, legal liability, trust, competence, and so forth.

According to Dual Processing theory, a heightened exposure to disability incites objective reasoning by larger firms that counteracts disability stereotypes. The exposure should thus enable System 2 thinking where interactions between people with and without disabilities—as coworkers, associates and social acquaintances—fosters loyalty, respect, comfort, and an alliance (National Collaborative on Workforce and Disability, 2016). Given the above, the study hypothesizes that:

Research Hypothesis 4 (Field). *There will be a smaller gap in employer interest between people with and without disabilities in medium and large sized firms, than in smaller sized firms.*

According to Dual Processing theory, there are two different modes of information handling among employers. Here, their struggle ultimately lies in combatting belief biases with logically correct judgments of workers with disabilities. Regarding hiring behavior, transitioning from an intuitive approach to an objectively driven one can be accomplished by a signaling system. For example, corporate best practices around diversity and inclusion that are designed to ensure fairness depict a signaling system (Spence, 1973). In fact, corporate policies on affirmative action are found to be a strong predictor of hiring people with disabilities (Araten-Bergman, 2016). It may likely function as a signal to thwart consistency seeking and, more broadly, employer discrimination. The signal becomes instrumental to suppressing stereotypes toward disability, thereby establishing impartiality in hiring (Cable and Turban, 2003; Roberson et al., 2005).

However, the suppression of stereotypes may result in a rebound effect (Macrae, Bodenhausen, and Milne, 1998). That is, employers are presumably more inclined to rely on their intuitive beliefs and show aversion toward applicants with disabilities, especially when they are managing various tasks alongside recruitment. The tasks or "distractors" that function together with staffing may disturb employer cognition. It would cause a rebound effect where applicants with disabilities are poorly evaluated in comparison to their nondisabled counterpart (Colella et al., 1998). However, if there are no distractors at play, employers can continue to engage in System 2 reasoning where they are expected

to reconsider stereotypes and become more objectively driven in determining job-fitness (Dixon et al., 2003). Given the above, it is presumed that:

Research Hypothesis 5 (Lab). *Employers are less likely to express interest toward applicants with disabilities when they are occupied by distractors than when they are not occupied by distractors.*

The literature on diversity argued that context is a moderator in hiring behavior (Brief, Umphress, Dietz, Burrows, Butz, and Scholten, 2005). That is, employers are reflections of their environment (Brief et al., 2005), and if, for example, the industry they participate in is mostly comprised of able-bodied employees, applicants with disabilities may be discounted. Here, the influence of disability on employers' reactions is moderated by their experience with diversity in the market from which they acquire candidates.

For example, the evidence in Ameri and colleagues (forthcoming) suggested that employers who sought qualified accountants preferred able-bodied applicants to those with disabilities. It is not surprising because accounting as an occupation is, demographically, able-bodied (Duff and Ferguson, 2011). In fact, the homogenous composition of the accounting industry is well documented (Duff and Ferguson, 2011; Kirkham and Loft, 1993; Lehman and Tinker, 1987; Tinker and Neimark, 1987; Lehman, 1990; Matthews and Pirie, 2001; Anderson-Gough, Grey, Robson, 2001, 2005). The occupation is "closed to all but a narrow range of individuals whose social backgrounds [reflect] the most powerful groups in society" (Annisette, 2004, p: 641). Specifically, the

structured inequality in accounting is dominated by white, middle-class, males (Duff and Ferguson, 2011).[13]

Drawing from Impression Making theory, Role Congruity theory, and Social Dominance theory, the study anticipates that employers develop impressions about applicants (i.e., their traits) according to how the labor market is composed (Fiske and Taylor, 2013; Pugh, Dietz, Brief, and Wiley, 2008). The composition of labor markets serves as a signaling function of social dominance that shapes hiring behavior (Pratto, et al., 1994; Pugh et al., 2008). If, for example, the labor market is historically dominated by able-bodied employees, hiring behavior will be "hierarchy-enhancing" because employers will prefer role congruent applicants, namely people without disabilities (Duff and Ferguson, 2011). Alternatively, if the labor market is historically diverse, and employers fairly consider applicants with and without disabilities, hiring behavior is believed to be "hierarchy-attenuating" (Pratto et al., 1994; Brief et al., 2005; Elvira and Cohen, 2001).

Considering that accounting is hierarchy-enhancing (Pratto et al., 1994; Duff and Ferguson, 2011), that people with disabilities are underrepresented in the occupation (Authors, 2007a), and that prior field evidence showed applicants with disabilities received fewer callbacks in accountancy than their counterparts (Ameri et al., forthcoming). This study anticipates that perceived job-fitness is determined by role congruities reflecting (a) social hierarchies and (b) the environmental context. According to this understanding, the gap in employer interest between applicants with and without disabilities is expected to be greater in accounting than in software development.

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[13] See also, Fisher, 2000; Hammond, 1997; Hammond and Streeter, 1994; Jacobs, 2003; Anderson-Gough et al., 2005; Fogarty, 1997; Lowe, Reckers, and Sanders, 2001.

Software development was chosen as the other "high-skill" occupation to compare with accounting because it too requires an advanced degree, according to the Bureau of Labor Statistics O*Net data (BLS Occupational Outlook Handbook, 2017). Also, the disability that is operationalized to test this hypothesis, spinal cord injury (SCI) is very unlikely to limit productivity in both accounting and software engineering occupations, which should help rule out job-fit explanations for any differences in participants' responses (Ameri et al., forthcoming). In addition, businesses of Silicon Valley are arguably more "hierarchy-attenuating" than businesses in finance because they acknowledge that people with people with disabilities can offer a vast amount of human resources to their industry. LinkedIn (2016), for example, conducted a diversity report to understand their workforce composition. According to the percentage of employees at LinkedIn, 3% reported a disability. In recognizing this disparity, they have initiated programs around diversity hiring, and are developing partnerships with disability advocacy organizations to improve membership (LinkedIn, 2016). The study thus hypothesizes that

Research Hypothesis 6 (Lab). *There will be a greater gap in employer interest between applicants with and without disabilities in accounting than in software development.*

Research Hypothesis 7 (Lab). *SDO will moderate the effects of disability on perceived job-fit, such that high-SDO will result in decreased perceptions of job-fit for applicants with disabilities, but there will be no relationship between SDO and perceived job-fit for applicants without disabilities.*

Lastly, according to stereotype content theory, stereotypes toward people with disabilities include mixed attributions of competence and warmth, as described by the low scores on one dimension paired with high scores on the other (Fiske et al., 2002). Stereotype content could be associated with the emotions of *pity* (i.e., high warmth, low competence), *admiration* (i.e., high warmth, high competence), *contempt* (i.e., low warmth, low competence), and *envy* (i.e., low warmth and high competence) (Fiske et al., 2002). Typically, people with disabilities perceived with contempt (i.e., low-warmth, low competence), therefore, they are expected to receive fewer counts of employer interest compared to people without disabilities. The following hypothesis describes that:

> **Research Hypothesis 8 (Lab).** *Employers are less likely to perceive high-warmth and high-competence in applicants with disabilities than applicants without disabilities.*

People with disabilities have been found to struggle with low employment, and empirical evidence has indicated that employer attitudes—their social cognition precisely—appear to moderate hiring behavior. The study explored disability and employment with the use of field and laboratory experimentations that compared hiring outcomes between applicants with and without disabilities. The two field experiments measured callback rates among high- and low-skill occupations with the use of "paper persons," whereas the laboratory experiments directly tested for social cognition theories that are believed to facilitate employer hiring behavior by replicating staffing in a controlled setting.

METHOD

1. Research Designs (A) and (B).

This chapter describes the research design, method, population and sampling, and data collection procedure of two field experiments and two laboratory experiments (respectively). It begins with explaining field experiment (1), followed by field experiment (2). Laboratory experiments (1) and (2) are then introduced.

The objective of Research Design (A) (i.e., the two field experiments) was to determine whether employers express lower interest in applicants with disabilities than in those without disabilities, among two occupation types (high-skill and low-skill). The study investigated whether employer interest toward applicants was influenced by the presence of disability and its type, qualification levels, occupational skill levels, and employer size.

The objective of Research Design (B) (i.e., the two laboratory experiments) was to determine whether participants who are conditioned to objectively evaluate qualified job applicants expressed lower interest toward people with disabilities than their counterparts, for jobs in two high-skill occupations. The study established whether participant interest toward applicants is influenced by the presence of disability, particularly when a distraction is introduced in the experimental group. In accordance with Dual Processing, the distraction was intended to provoke instinctive decision making by lab participants when they determined job-fitness toward applicants with disabilities.

2. Research Design (A): The Field Experiments.

The literature on disability has traditionally examined discrepancies in hiring outcomes for people with disabilities through survey and laboratory studies. To fully appreciate employer hiring behavior, field experimentation was used in Ameri et al. (forthcoming), and the results were quantitatively analyzed. The results were consistent with previous evidence that showed lower employer interest toward hiring people with disabilities. However, the study possessed limitations that included addressing only one occupation as well as two types of disability. Arguably, the findings may not be generalizable to other jobs and disabilities. The two field experiments in Research Design (A) thus tackled those limitations.

Field Experiment (1). In field experiment (1), six-thousand and sixteen (6,016) job applications were submitted to advertised openings for software developer positions (a *high-skill* occupation) using fictional résumés and cover letters. Software developer was chosen as the "high-skill" occupation because (a) the employment of software developers is predicted to increase by 17% from 2014 to 2024, which is faster than the average for all occupations because of the increase in the demand for computer engineering; (b) according to the Bureau of Labor Statistics O*Net data, it requires a background in science, technology, engineering, and mathematics, with a Bachelor's or Master's degree in either computer science or engineering; and (b) median wages are $49.46 hourly or $102,880 annually (BLS Occupational Outlook Handbook, 2017).

The résumés and cover letters were divided evenly among applications that (1) did not mention disability; (2) disclosed the applicant had a spinal cord injury; (3) disclosed the applicant had Post-Traumatic Stress Disorder; and (4) disclosed the applicant was hearing impaired. The disabilities were carefully chosen because they are

protected by the ADA, so employers who fall within its guidelines must not discriminate and must provide reasonable accommodations. Furthermore, applications were limited to "tech" jobs in which the three disabilities are very unlikely to inhibit work productivity. The first disability used here, spinal cord injury (SCI), is the result of spinal cord nerve damage that impairs mobility. Most people with SCI require the use of a wheelchair (DeVivo, Whiteneck, and Charles, 1995), which limits productivity in some but not all occupations; productivity is least likely to be affected where the use of computers is a primary factor (e.g., software developer) (Krueger and Kruse, 1995). Post-traumatic stress disorder (PTSD) is similarly very unlikely to limit productivity in software engineering. PTSD is a debilitating condition that occurs after exposure to a traumatic incident in which afflicted people are either physically harmed or greatly threatened (National Institute of Mental Health, 2008). These traumatic events can trigger stress in the form of flashbacks and anxiety, especially when exposed to stimuli that evoke the trauma. People who control their PTSD with medication and therapy are as productive as able-bodied workers, so PTSD is acceptable for the chosen occupation (EEOC, 1992). Similarly, a hearing impairment should not restrict the productivity of software developers. Hearing impairments can be caused by various physical conditions (e.g., age, injury, heredity) (Crews and Campbell, 2004; NIDCD, 2010). Assistive technologies such as hearing aids and cochlear implants can improve employment levels, as their use reduces the loss of income by 90 to 100% for those with milder conditions, and 65 to 77% for those with moderate to severe conditions (BHI, 2015). Therefore, concerns of productivity may be minimized if a proper course of treatment is undertaken to improve hearing loss (EEOC, 2002).

To test the effect of qualifications on employer demand for applicants with disabilities, the résumés and cover letters were designed to demonstrate that applicants were well-qualified. The résumés and cover letters were randomly divided between novice applicants who recently graduated with a college degree in computer science, and experts who were skilled in numerous programming languages with nine years of successful experience integrating, developing, designing and supporting corporate tools and applications, including e-commerce, database architecture, and content management. The study design included eight (8) cells, representing the permutations of disability status portrayed in résumés and cover letters (i.e., hearing impaired, PTSD, SCI, or no disability) and experience level (novice or experienced). Eight applicants were created to reflect these arrangements. Male names that originated from BabyCenter's "Top 100 Baby Names of 1990" were used in the applications.[14] Four names were associated with the novice résumé and four associated with the experienced résumé. To avoid any bias associated with the chosen names, disability status was randomly rotated through each one. That is, each name was alternatively tested with the status of no disability, spinal cord injury, PTSD, and hearing impairment.

Disability status was manipulated with the use of a cover letter. Cover letters commonly introduce job applicants, highlighting key experiences and skills. They are fundamentally used to project applicant strengths; therefore, they were similarly used here to describe how the manipulated disabilities related to skill building in the context of volunteer work (i.e., stating that volunteering in a disability organization helped build the applicant's ability to work effectively with others in a supervisory capacity). Simulated

[14] http://www.babycenter.com/top-baby-names-2015.

disability organizations included the "National Paraplegia Association;" "Coalition for PTSD;" "American Hearing Association;" and "Disability Rights Forum." Letters for applicants without a disability also mentioned volunteer work for a disability organization (i.e., the "Disability Rights Forum"), however a distinction was made in the wording for those with disabilities: "As an individual with [SCI/ PTSD/Hearing Impaired], I am committed to providing my time and energy to those similar to myself."[15] Furthermore, to increase the likelihood that the disability was detected, the cover letters also noted the following statement: "My disability does not interfere with my ability to perform the skills needed in a tech environment. I would be happy to answer any questions that you may have about this.".

Telephone numbers and email addresses were generated from "GoogleVoice" and "Gmail,"—Google's premiere telephone and email platforms—as a way for employers to express interview-intent. A professional online presence through "LinkedIn" was also created to validate the applicants' identities. LinkedIn allows its users to create public profiles that reflect work credentials (i.e., a virtual résumé), and in the context of this experiment, it further legitimized applicant authenticity.

Indeed.com—an employment search engine for job listings that are gathered from websites, job boards, staffing firms, associations, and company career pages—was also used to randomly submit applicant profiles. To ensure that employers did not question why the applicants would apply for software developer positions from another state, the

[15] For applicants without disabilities, the sentence describing their volunteer work included the following: "As someone who has a brother that lives with a disability, I am committed to providing my time and energy to those similar to him."

address of applicants were tailored to match the major metropolitan area in which the job was located.

Field Experiment (2). In Ameri et al. (forthcoming), the sample design was restricted to well-qualified male candidates for accounting positions, and so the results may not generalize to other groups, including people with other types of disabilities, people without college degrees (e.g., high school diploma or equivalent), and those applying for other types of jobs (e.g., service and blue collar occupations in which people with disabilities are overrepresented).

In recognizing this limitation, field experiment (2) submitted an additional six-thousand and sixteen (6,016) job applications to advertised openings for Data-entry clerks (a type of *low-skill* occupation) using fictional résumés and cover letters. This "low-skill" occupation was chosen because (a) the average education includes a high school diploma; and (b) generates median wages of $13.88 hourly and $25,760 annually (BLS Occupational Outlook Handbook, 2017). Cover letters and résumés were divided evenly among applicants who (1) did not mention disability; (2) disclosed the applicant had a spinal cord injury; (3) disclosed the applicant had Post-Traumatic Stress Disorder; and (4) disclosed the applicant was hearing impaired. The disabilities were chosen because they were not expected to limit productivity in this clerical occupation.[16] The résumés and cover letters were designed to demonstrate that applicants were qualified. The résumés and cover letters were randomly divided between applicants representing novices who recently graduated with a high school diploma, and experts who had skilled knowledge of

[16] The argument made here on productivity constraints is like that of field experiment (1). Two work values cited by O*Net includes "independence" and "autonomy" wherein employees are expected to work on their own and make decisions.

data entry, with nine-year's experience in administrative and clerical procedures and systems such as word processing. Much like field experiment (1) the study design here included eight (8) cells, representing the permutations of disability status portrayed in résumés and cover letters (i.e., hearing impaired, PTSD, SCI, or no disability) and experience level (novice or experienced). Male names derived from BabyCenter's "Top 100 Baby Names of 1990" were also used in the applications—four of which were associated with novice résumés and four were associated with experienced résumés. To avoid any bias associated with the names, disability status was randomly rotated through each one.

Disability was operationalized using cover letters, positioning it as a strength building characteristic (identical to field experiment 1). All applicants (including those without a disability) described their membership with simulated disability organizations that included the "National Paraplegia Association;" "Coalition for PTSD;" "American Hearing Association;" and "Disability Right Forum." As in field experiment (1), letters for applicants with disabilities also included the following statement: "As an individual with [SCI/ PTSD/Hearing Impaired], I am committed to providing my time and energy to those similar to myself."[17] To increase the likelihood that disability was spotted, the cover letters also underscored disability with the following statement: "My disability does not interfere with my ability to perform the skills needed in a service environment. I would be happy to answer any questions that you may have concerning this matter."

[17] Like field experiment (1), applicants without disabilities described their volunteer work with the following: "As someone who has a brother that lives with a disability, I am committed to providing my time and energy to those similar to him."

Consistent with field experiment (1), telephone numbers and email addresses were generated with the use of "GoogleVoice" and "Gmail,"—Google's premiere telephone and email platforms—as a way for employers to express interview-intent. A professional online presence through "LinkedIn" was also used to further legitimize applicant authenticity. Indeed.com was used to randomly submit applicant profiles. To ensure that employers did not question why the applicants would apply for data entry clerk positions from another state, addresses were tailored to match the major metropolitan area in which the job was located.

3. Data Collection and Analytics for the Field Experiments.

Field experiments (1) and (2) used identical data collection methods and analytics. Employer responses were collected after submitting all application materials, and spanned a two-month duration because some employers took longer than others to respond. Responses from email correspondence and voicemail were recorded and categorized according to the applicants' disability, qualification level, and callback type. Employer responses were divided into three categories: (1) those expressing desire for an interview; (2) those expressing another form of active employer interest (e.g., requesting further documents or credentials, inviting the applicant to apply for another position in the company, or requesting the applicant to also apply through the company website); and (3) those not expressing any interest (including no response and rejections). Items #1 and #2 were combined to represent "any employer interest," whereas item #3 represented "no employer interest." To ensure company privacy, correspondences were purged after coding them. Employer characteristics were coded using information on RefUSA and

company websites when information from RefUSA was unavailable (Ameri et al., forthcoming). The characteristics that were coded included (1) state of operation; (2) number of employees; and (3) industry (NAICS code). The variables were used to define control variables in the logistic regression analysis.

A total of six hierarchical logistic regressions were modeled. The first set of two regressions were modeled using the data collected for the high-skill occupation as specified in field experiment (1). A second set of two regressions were modeled using the data collected for the low-skill occupation as specified in field experiment (2). A third set of two regressions included a dummy coded variable representing occupation type (low skill vs. high-skill) to test hypothesis 3 on the difference in the disability gap between the high-skill and low-skill occupations. The variable operationalizations and steps for each of the six hierarchical logistic regression models are presented in Tables 1 through 6. The variables were operationalized for use in the logistic regression analyses as follows:

Employer interest. Employer responses to each submitted cover letter/résumé were divided into three categories that comprised: (1) those expressing desire for an interview; (2) those expressing another form of active employer interest (e.g., requesting further documents or credentials, inviting the applicant to apply for another position in the company, checking that the applicant is aware that the job is in another state, or requesting the applicant to also apply through the company website); and (3) those not expressing any interest (including no response and rejections). Items #1 and #2 were combined to represent "any employer interest" whereas item #3 represented "no employer interest." The variable was dichotomous and was coded as "any employer

interest" = 1, and "no employer interest" = 0. Employer interest was used as the dependent variable in the hierarchical logistic regression analyses.

Applicant qualification. Applicant qualifications were classified between those representing (a) novices and (b) experts according to the criteria set in the two individual field experiments. The variable was dichotomous and was coded as 0 = novice and 1 = expert. Applicant qualification was used as an independent variable in step one of all six hierarchical logistic regression analyses.

Firm size. The number of employees for each firm was obtained with information from RefUSA, or from company websites when information from RefUSA was unavailable (Ameri et al., forthcoming). Employment size was tested as a series of dummy variables. The key advantage of using dummy variables was that companies could be separated according to whether they meet the ADA's 15-employee threshold for coverage. The dummy variables were used to classify firms into one of three firm size groups: (a) small-sized firm, defined as a firm with fewer than 15 employees; (b) medium-sized firm, defined as a firm with 15 to 99 employees; and (c) large-firm, defined as a firm with 100 or more employees. Using three indicator variables, each company was coded for each of the three firm-size classifications as 1 = yes, 0 = no. For example, a company with 10 employees was given a code of 1 for the small-sized firm indicator variable, and a code of 0 for both the medium-sized and large-sized firm indicator variables. The logistic regression models contained the indicator variables of small-sized firm and large-sized firm. The reference group for firm size was "medium-sized firm." ADA regulations do not apply to small-sized firms, but do apply to medium- and large-sized firms. Thus, using medium-sized firms as the reference group in the

equations of the regression models allowed for the researcher to control for both the firm-size and the ADA regulatory status of the companies. The indicator variables of (a) small-sized firm and (b) large-sized firm were used as independent variables in step one of the hierarchical logistic regression analyses.

Disability Status. Disability was tested both as a single dummy variable (regressions 4, 5, and 6; variable name Disability Aggregated) and as a series of dummy variables representing different disabilities (regressions 1, 2, and 3; variable name Disability Status). For the disability status variable, a total of four indicator variables were constructed, (a) no disability, (b) spinal cord injury, (c), post-traumatic stress disorder, and (d) hearing impairment. The reference group for the disability status variables was "no disability", such that the records of job applicants with disabilities were compared to those without disability. The indicator variables (a) spinal cord injury, (b) post-traumatic stress disorder, and (c) hearing impairment were used as independent variables in step two of the hierarchical logistic regression analyses of regressions 1, 2, and 3. The findings obtained from step one in the models represented average effects of firm size and qualification level across all applicants. Including the three disability variables at step two in the models with individual disability types (models 1, 2, and 3) allowed for investigation of the added effects of disability status on employer interest above and beyond the applicants' qualifications, employer's firm sizes, and for the aggregated models, occupation type, in step 1.

Disability Aggregated. For the disability aggregated variable, the disability type was included as a dichotomous variable in regression models 4, 5, and 6. The variable was coded as 0 = no disability and 1 = any disability.

Occupation Type. A variable for occupation type was included for the regression models that included all records (regression models 4 and 6). The variable was coded as 0 = low-skill, and 1 = high-skill.

The regression models also included a third step with specifications that alternatively interacted the disability variables with a) the applicant qualification dummy; b) the firm size variables; and c) the low-skill occupation dummy (in the aggregated models), to investigate moderation effects for hypotheses 2, and 3. Tables 1 through 6 present the layout of the various logistic regression models. As mentioned previously, six models were built as follows:

- Model 1 included applicants in the low-skill occupation and the individual disability classifications.
- Model 2 included applicants in the high-skill occupation and the individual disability classifications.
- Model 3 included all applicants, a dummy coded variable for occupation type, and the individual disability classifications.
- Model 4 included applicants in the low-skill occupation and a dichotomously coded disability variable (Disability aggregated) coded as 0 = no disability, 1 = any disability.
- Model 5 included applicants in the high-skill occupation and a dichotomously coded disability variable (Disability aggregated) coded as 0 = no disability, 1 = any disability.

- Model 6 included all applicants, a dummy coded variable for occupation type, and a dichotomously coded disability variable (Disability aggregated) coded as 0 = no disability, 1 = any disability.

Table 1

Model Specifications for Logistic Regression 1, with Individual Disability Types for Low-Skill Applicants

Step	Variable Type/Variable Name		Operationalization
---	Dependent	Employer interest	0 = No interest 1 = Interest
Step 1- Qualification of applicant and firm size variables (main effects)			
	Independent	Applicant qualification	0 = Novice; 1 = Expert
	Independent	Firm Size = Small (less than 15 employees)	0 = No; 1 = Yes
	Independent	Firm Size = Large (more than 99 employees)	0 = No; 1 = Yes
Step 2 - Disability Status Variables (main effects)			
	Independent	Spinal cord injury	0 = No; 1 = Yes
	Independent	Post-traumatic stress disorder	0 = No; 1 = Yes
	Independent	Hearing impaired	0 = No; 1 = Yes
Step 3 - Interaction term variables (interaction effects)			
	Moderator	Spinal Cord Injury X Applicant Qualification	---
	Moderator	Post-Traumatic Stress Disorder X Applicant Qualification	---
	Moderator	Hearing Impairment X Applicant Qualification	---
	Moderator	Spinal Cord Injury X Firm Size = Small	---
	Moderator	Spinal Cord Injury X Firm Size = Large	---
	Moderator	Post-Traumatic Stress Syndrome X Firm Size = Small	---
	Moderator	Post-Traumatic Stress Syndrome X Firm Size = Large	---
	Moderator	Hearing Impaired X Firm Size = Small	---
	Moderator	Hearing Impaired X Firm Size = Large	---

Table 2

Model Specifications for Logistic Regression 2, with Individual Disability Types for High-Skill Applicants

Step	Variable Type/Variable Name		Operationalization
---	Dependent	Employer interest	0 = No interest 1 = Interest
Step 1- Qualification of applicant and firm size variables (main effects)			
	Independent	Applicant qualification	0 = Novice; 1 = Expert
	Independent	Firm Size = Small (less than 15 employees)	0 = No; 1 = Yes
	Independent	Firm Size = Large (more than 99 employees)	0 = No; 1 = Yes
Step 2 - Disability Status Variables (main effects)			
	Independent	Spinal cord injury	0 = No; 1 = Yes
	Independent	Post-traumatic stress disorder	0 = No; 1 = Yes
	Independent	Hearing impaired	0 = No; 1 = Yes
Step 3 - Interaction term variables (interaction effects)			
	Moderator	Spinal Cord Injury X Applicant Qualification	---
	Moderator	Post-Traumatic Stress Disorder X Applicant Qualification	---
	Moderator	Hearing Impairment X Applicant Qualification	---
	Moderator	Spinal Cord Injury X Firm Size = Small	---
	Moderator	Spinal Cord Injury X Firm Size = Large	---
	Moderator	Post-Traumatic Stress Syndrome X Firm Size = Small	---
	Moderator	Post-Traumatic Stress Syndrome X Firm Size = Large	---
	Moderator	Hearing Impaired X Firm Size = Small	---
	Moderator	Hearing Impaired X Firm Size = Large	---

Table 3

Model Specifications for Logistic Regression 3, with Individual Disability Types for All Applicants

Step	Variable Type/Variable Name		Operationalization
---	Dependent	Employer interest	0 = No interest 1 = Interest
Step 1- Qualification of applicant and firm size variables (main effects)			
	Independent	Applicant qualification	0 = Novice; 1 = Expert
	Independent	Occupation type	0 = Low-skill; 1 = High-skill
	Independent	Firm Size = Small (less than 15 employees)	0 = No; 1 = Yes
	Independent	Firm Size = Large (more than 99 employees)	0 = No; 1 = Yes
Step 2 - Disability Status Variables (main effects)			
	Independent	Spinal cord injury	0 = No; 1 = Yes
	Independent	Post-traumatic stress disorder	0 = No; 1 = Yes
	Independent	Hearing impaired	0 = No; 1 = Yes
Step 3 - Interaction term variables (interaction effects)			
	Moderator	Spinal Cord Injury X Applicant Qualification	---
	Moderator	Post-Traumatic Stress Disorder X Applicant Qualification	---
	Moderator	Hearing Impairment X Applicant Qualification	---
	Moderator	Spinal Cord Injury X Firm Size = Small	---
	Moderator	Spinal Cord Injury X Firm Size = Large	---
	Moderator	Post-Traumatic Stress Syndrome X Firm Size = Small	---
	Moderator	Post-Traumatic Stress Syndrome X Firm Size = Large	---
	Moderator	Hearing Impaired X Firm Size = Small	---
	Moderator	Hearing Impaired X Firm Size = Large	---
	Moderator	Spinal Cord Injury X Occupation Type	---
	Moderator	Post-Traumatic Stress Disorder X Occupation Type	---
	Moderator	Hearing Impaired X Occupation Type	---

Table 4

Model Specifications for Logistic Regression 4, with Aggregated Disability Types for Low-Skill Applicants

Step	Variable Type/Variable Name		Operationalization
---	Dependent	Employer interest	0 = No interest 1 = Interest
Step 1- Qualification of applicant and firm size variables (main effects)			
	Independent	Applicant qualification	0 = Novice; 1 = Expert
	Independent	Firm Size = Small (less than 15 employees)	0 = No; 1 = Yes
	Independent	Firm Size = Large (more than 99 employees)	0 = No; 1 = Yes
Step 2 - Disability Status Variables (main effects)			
	Independent	Disability aggregated	0 = No disability; 1 = Any disability
Step 3 - Interaction term variables (interaction effects)			
	Moderator	Disability Aggregated X Applicant Qualification	---
	Moderator	Disability Aggregated X Firm Size = Small	---
	Moderator	Disability Aggregated X Firm Size = Large	---

Table 5

Model Specifications for Logistic Regression 5, with Aggregated Disability Types for High-Skill Applicants

Step	Variable Type/Variable Name		Operationalization
---	Dependent	Employer interest	0 = No interest 1 = Interest
Step 1- Qualification of applicant and firm size variables (main effects)			
	Independent	Applicant qualification	0 = Novice; 1 = Expert
	Independent	Firm Size = Small (less than 15 employees)	0 = No; 1 = Yes
	Independent	Firm Size = Large (more than 99 employees)	0 = No; 1 = Yes
Step 2 - Disability Status Variables (main effects)			
	Independent	Disability aggregated	0 = No disability; 1 = Any disability
Step 3 - Interaction term variables (interaction effects)			
	Moderator	Disability Aggregated X Applicant Qualification	---
	Moderator	Disability Aggregated X Firm Size = Small	---
	Moderator	Disability Aggregated X Firm Size = Large	---

Table 6

Model Specifications for Logistic Regression 6, with Aggregated Disability Types for All Applicants

Step	Variable Type/Variable Name		Operationalization
---	Dependent	Employer interest	0 = No interest 1 = Interest
Step 1- Qualification of applicant and firm size variables (main effects)			
	Independent	Applicant qualification	0 = Novice; 1 = Expert
	Independent	Occupation type	0 = Low-skill; 1 = High-skill
	Independent	Firm Size = Small (less than 15 employees)	0 = No; 1 = Yes
	Independent	Firm Size = Large (more than 99 employees)	0 = No; 1 = Yes
Step 2 - Disability Status Variables (main effects)			
	Independent	Disability aggregated	0 = No disability; 1 = Any disability
Step 3 - Interaction term variables (interaction effects)			
	Moderator	Disability Aggregated X Applicant Qualification	---
	Moderator	Disability Aggregated X Firm Size = Small	---
	Moderator	Disability Aggregated X Firm Size = Large	---
	Moderator	Disability Aggregated X Occupation Type	---

4. Hypothesis Testing for the Field Experiments.

All hypothesis tests were performed with SPSS v.22 statistical software. All inferences from the hypothesis tests were made at the 95% level of significance ($p < .05$). A total of $N = 12{,}032$ records, were included in the regression analyses. In addition to the model coefficients, odds ratios as well as the 95% confidence intervals of the odds ratios derived from the regression models are reported. Prior to hypothesis testing, descriptive statistics of frequency counts and percentages of the variables are presented in tables. Additionally, all main effects were investigated for bi-variate associations using phi coefficients obtained from Pearson's product-moment correlation analyses. The four research hypothesis and associated statistical hypotheses tested with the field study data are presented as follows:

Research Hypothesis 1. People with disabilities are less likely than those without disabilities to receive expressions of employer interest in response to job applications.

Step 2 of all six regression models was investigated according to the following hypothesis tests:

Null Hypothesis 1. None of the disability indicator variables of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impairment included in step two of models 1, 2, and/or 3, nor the disability aggregated variable included in step 2 of models 4, 5, and/or 6 will significantly contribute to the dependent variable of employer interest, after controlling for the step one variables of applicant qualification and firm size.

Alternative Hypothesis 1. At least one of the three disability indicator variables of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impairment included in step two of models 1, 2, and/or 3, or the disability aggregated variable included in step 2 of models 4, 5, and/or 6 will significantly contribute to the dependent variable of employer interest, after controlling for the step one variables of applicant qualification and firm size.

Research Hypothesis 2. There will be a smaller gap in employer interest between people with and without disabilities among applicants with higher qualifications than among applicants with lower qualifications.

The interaction terms relating to Disability X Applicant Qualification in Step 3 of each of the six hierarchical regression models were investigated to address the following hypothesis tests:

Null Hypothesis 2. None of the Disability X Applicant Qualification moderator variables including the three individual disabilities of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impaired included in step three of models 1, 2, and/or 3, nor the Disability Aggregated X Applicant Qualification interaction included in step 3 of models 4, 5, and/or 6 will be associated with a significant increase in the odds of the dependent variable of employer interest.

Alternative Hypothesis 2. At least one of the Disability X Applicant Qualification moderator variables including the three individual disabilities of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impaired included in step three of models 1, 2, and/or 3, nor the Disability Aggregated X Applicant Qualification

interaction included in step 3 of models 4, 5, and/or 6 will be associated with a significant increase in the odds of the dependent variable of employer interest.

Note: Since an increase in the odds ratio is hypothesized, inference of significance was performed for Hypothesis 2 with one-sided tests.

Research Hypothesis 3. There will be a smaller gap in employer interest between people with and without disabilities in the low-skill occupation than in the high-skill occupation.

Regression models 3 and 6, which included all applicants and a dummy coded variable for occupation type, were investigated to address the hypotheses.

Null Hypothesis 3. The interactions of the disability variables with the high-skill occupation variable will not be associated with a significant decrease in the odds of the dependent variable of employer interest.

Alternative Hypothesis 3. The interactions of the disability variables with the high-skill occupation variable will be associated with significant decreases in the odds of the dependent variable of employer interest.

Research Hypothesis 4. There will be a smaller gap in employer interest between people with and without disabilities in medium and large sized firms, than in smaller sized firms.

The Disability X Firm Size interaction terms in step 3 of all six regression models were investigated to address the following hypotheses:

Null Hypothesis 4. None of the odds ratios relating to employer interest for the interactions of the disability variables with small firm size will be significantly lower than the interaction effects of disability with medium and large firm size.

Alternative Hypothesis 4. At least one of the odds ratios relating to employer interest for the interaction of the disability variables with small firm size will be significantly lower than the interaction effects of disability with medium and large firm size.

Study Power for the Field Experiments. An a priori power analysis was performed to determine the minimum sample size needed for the study. Power is (1-β), where β is the chance of Type II error (when one rejects the null hypothesis when it is in fact false). At a power of .80, one has an 80% chance of seeing significance that is truly in the data. GPOWER 3.1.3 software (Faul et al., 2007) was used in this determination. The first power analysis was performed for a two-tailed test of correlation, with an alpha level of .05, power of .80, and a medium effect size of $|r| = .30$. The results indicated that a sample of 82 records were required to achieve power at 80%.

The sample size required for adequate power in the hierarchical logistic regressions was also derived from GPOWER software using an alpha level of .05, power of .80, and an effect size .75, which was computed from a change in employer interest of 5% from a baseline percentage of 25% for someone not disabled. The 25% interest percentage was obtained from a previous study by Ameri et al. (forthcoming). The minimum sample size required for the multiple hierarchical regressions is 2,200 participants. The number of records in this study, $N = 12{,}032$, was well above the minimum sample size needed to see a significant effect.

5. Research Design (B): The Laboratory Experiments.

In addition to the field experiments, the study performed two laboratory experiments that were identical in structure, apart from the type of position for which the job applicant was applying. Laboratory

experiment (1) included applicants for a software developer position. Laboratory experiment (2) included applicants for an accounting position. The following section details the two laboratory studies.

Laboratory Experiment (1). Lab experiment (1) explored whether job applicants with disabilities received lower expressions of employer interest than applicants without disabilities for a software developer position, even when their education and work experience were identical. It was designed to support the evidence from field experiment (1) through a Person-Job fit measure. In addition, it was designed to directly measure Dual Processing by using a signaling system that attempted to evoke Stereotype Suppression, and a distraction that attempted to evoke a Rebound Effect.

Participants. One hundred and twenty (N = 120) undergraduate business school students voluntarily participated in lab experiment (1). The participants were first conditioned to think that they were human resources personnel of a technology-based firm named, "Gamma North America, Inc" (GNA). Afterward, the participants were introduced to GNA's corporate policy of inclusion through a virtual demonstration that explained the company's commitment to fostering and preserving a culture of diversity (See Appendix L).[18] The demonstration also explained that GNA's diversity initiative is applicable to their practices and policies on recruitment and more. In addition, the visual demonstration explained GNA's ongoing development of a work environment that encourages and enforces (1) respectful communication and cooperation between all employees; (2) teamwork and employee participation, permitting the representation of all groups and employee perspectives; (3) work/life balance through flexible work schedules to accommodate employees' varying needs; and (4) employer and employee

[18] The policy was derived the Society for Human Resource Management.

contributions to the communities it serves to promote a greater understanding and respect for diversity (see Appendix L). In sum, the inclusion policy was intended to be a signaling system that would enable stereotype suppression and objective evaluations (i.e., System 2 reasoning) of job-fitness toward the applicants with disabilities.

For this exercise, the participants were informed that they would be filling a software developer position that was available. They were presented with a job description, and each participant was then instructed to determine whether a well-qualified applicant who was assigned to them should be hired for the software developer position.[19] To determine job-fitness, participants were provided with cover letters from hypothetical applicants, and provided a questionnaire subsequently.[20]

Instruments. The study design included four (4) cells, representing permutations of disability status that were portrayed in the cover letters (i.e., spinal cord injury or no disability) and whether the participants were assigned a distraction (i.e., distraction or no distraction). Four applicants were created to reflect these arrangements. Two of the applicants with and without disabilities were assigned to the non-distraction group (N = 60), whereas the remaining two were assigned to the distraction group (N = 60). One male name was associated with the four cover letters to control for bias associated with the chosen name. The name originated from BabyCenter's "Top 100 Baby Names of 1990."

Non-Distraction Group. In the non-distraction group, two cover letter types were evenly distributed among the sample of participants (N = 60). Half of the sample (n =

[19] The job description was derived from a real technology firm through indeed.com. See Appendix (L).
[20] The cover letters are derived from field experiment (1) of this study. Apart from the disclosure of disability in the experimental condition, the cover letters were identical.

30) received a cover letter from a highly-qualified applicant with spinal cord injury, whereas the other half (n = 30) received a cover letter from an equally qualified applicant without a disability.

Disability type was revealed through the cover letter. A cover letter commonly introduces job applicants and projects their strengths by highlighting key experiences and skills. Therefore, it was used here to describe how the manipulated disability of interest (i.e., spinal cord injury) related to skill building in the context of volunteer work (i.e., stating that volunteering in a disability organization helped build the applicant's ability to work effectively with others in a supervisory capacity).

The simulated disability organization was titled, "National Paraplegia Association." The applicant without a disability also referred to volunteer work with the "National Paraplegia Association" by stating the following: "As someone who has a brother that lives with a disability, I am committed to providing my time and energy to those like him." However, a distinction was made in the wording for the applicant with a disability to include: "As an individual with a spinal cord injury, I am committed to providing my time and energy to those like myself." Furthermore, to increase the likelihood that the impairment was detected, the disability cover letter also included the following statement: "My disability does not interfere with my ability to perform the skills needed in a tech environment. I would be happy to answer any questions that you may have about this."

To control for the effect of qualifications on participants' hiring-intent, the cover letters from applicants with and without disabilities were identically designed to demonstrate that the applicants were highly qualified.

Participants had two minutes to review the cover letter, and they were not aware of this time restriction before proceeding to the questionnaire. During the questionnaire phase, participants were prohibited from referring to other materials.

Distraction Group. In the distraction group, two cover letter types were evenly distributed among the sample of participants ($N = 60$). Half of the sample ($n = 30$) received a cover letter from a highly-qualified applicant with spinal cord injury, whereas the other half ($n = 30$) received a cover letter from an equally qualified applicant without a disability.

Disability type was revealed through the cover letter. A cover letter commonly introduces job applicants and projects their strengths by highlighting key experiences and skills. Therefore, it was used here to describe how the manipulated disability of interest (i.e., spinal cord injury) related to skill building in the context of volunteer work (i.e., stating that volunteering in a disability organization helped build the applicant's ability to work effectively with others in a supervisory capacity).

The simulated disability organization was titled, "National Paraplegia Association." The applicant without a disability also referred to volunteer work with the "National Paraplegia Association" by stating the following: "As someone who has a brother that lives with a disability, I am committed to providing my time and energy to those like him." However, a distinction was made in the wording for the applicant with a disability to include: "As an individual with a spinal cord injury, I am committed to providing my time and energy to those like myself." Furthermore, to increase the likelihood that the impairment was detected, the disability cover letter also made the following statement: "My disability does not interfere with my ability to perform the

skills needed in a tech environment. I would be happy to answer any questions that you may have about this."

To control for the effect of qualifications on participants' hiring-intent, the cover letters from applicants with and without disabilities were identically designed to demonstrate that the applicants were highly qualified.

To test for Dual Processing on hiring-intent, an additional task designed as a distraction was applied to this group. Whereas the non-distracted participants had two minutes to examine the cover letter before proceeding to the questionnaire, the participants here were additionally instructed to review an HR-related document (i.e., a lengthy grievance notice) one-minute into examining the cover letter. The participants used the remaining minute to review the grievance notice before proceeding to the questionnaire (See Appendix L). Participants were not aware of these time restrictions before proceeding to the questionnaire. During the questionnaire phase, participants were prohibited from referring to other materials. According to Dual Processing theory, the additional task was designed to disturb participants' cognition, so that they would behave more subjectively than objectively in determining hiring-intent toward the applicant with spinal cord injury (SCI). That is, when participants became overwhelmed by information it might be expected to cause a rebound effect in which stereotypes associated with SCI returned to their consciousness. In this case, the distracted participants would be more likely to rely on their "gut" instinct to evaluate job-fitness.

Laboratory Experiment (2). One hundred and twenty-one (N = 121) undergraduate business school students voluntarily participated in laboratory experiment

(2). This experiment was identical to laboratory experiment (1), except that the applied-for position was accounting instead of software development.

6. Data Collection and Analytics for the Laboratory Experiments.

The data collection and analysis described in this segment are identical between laboratory experiments (1) and (2). Again, the only difference between the two laboratory experiments was the position for which the applicant applied (i.e., software developer for laboratory experiment 1 and accountant for laboratory experiment 2).

Measures. The questionnaire (see Appendix L) included the following measures that assessed perceived job-fitness, as well as perceptions of outgroup members.

I. Person-Job Fit, using the Higgins and Judge (2004) scale.

II. Stereotype Content Model, using the Fiske, Cuddy, Glick, and Xu (2002) warmth and competence scales.

III. Social Dominance Orientation, using the Pratto, Sidanius, Stallworth, and Malle (1994) scale.

I. Person-Job Fit. Person–Job fit (P-J fit) theory describes how applicants' traits reveal insights about their adaptability to an organization (Anderson, Spataro, and Flynn, 2008). According to the recruitment literature, hiring is a method by which employers select candidates whose qualifications best match the requirements of the job (Werbel and Gilliland, 1999). However, research shows that subjective evaluations by employers have stronger effects on hiring outcomes than do objective qualifications (Gilmore and Ferris, 1989; Kinicki, Lockwood, Hom, and Griffeth, 1990; Rynes and Gerhart, 1990).

For example, Kristof-Brown (2000) and Dipboye (1994) find that employers' judgments on job-fitness are strongly subjective. Kinicki and colleagues (1990) equally find that subjective evaluations of job-fitness result in unfavorable hiring outcomes for

minority applicants. Applicants' qualifications had little-to-no effect on employer behavior. Therefore, it was anticipated that participants' perceptions toward disability would be negatively correlated with hiring outcomes toward applicants with an impairment.

The study evaluated perceived job-fitness by using the Higgins and Judge (2004) scale that determined the congruence between job demands and applicant abilities. The coefficient alpha reliability estimate of this scale in the literature was .92. The items used in this scale are provided in the Appendix (L). The instructions to participants read as follows, "Circle the response that best characterizes how you feel about the statements below, from: 1 = Entirely disagree, to 7 = Entirely agree."

II, Stereotype Content Mode (SCM). Research on stereotype content (Fiske et al., 2002) describes stereotypes with the use of two dimensions, *warmth* and *competence*. SCM operates across a range of social perceptions toward target individuals and the groups they affiliate themselves with (Fiske et al., 2002). It fundamentally influences the level of prejudice and behavioral responses against targets (King and Ahmad, 2010). For example, stereotype content could be associated with the emotions of pity (i.e., high warmth, low competence), admiration (i.e., high warmth, high competence), contempt (i.e., low warmth, low competence), and envy (i.e., low warmth and high competence). It was anticipated that people with disabilities would elicit contempt (low-warmth, low competence). Therefore, they less likely to get hired, compared to similar people without disabilities.

The study evaluated stereotype content by using the Fiske, Cuddy, Glick, and Xu (2002) scales that determined stereotypical traits on competence and warmth

(respectively). The coefficient alpha reliability estimate of the competence scale in the literature was .94, and the reliability estimate of the warmth scale in the literature was .89. The items used from both scales are provided in the Appendix (L). The instructions to participants read as follows, "Based on the cover letter, indicate the extent to which the following characteristics describe the applicant from: 1 = Not at all, to 7 = Extremely."

III. Social Dominance Orientation. Social Dominance Orientation (SDO) is an individual-difference variable that expresses a participant's preference for inequality between categories of people (Pratto et al., 1994). Participants who score highly on this measure believe that group hierarchies are natural, unavoidable, and desirable. Furthermore, high-SDO levels are negatively associated with compassion, acceptance, and altruism (Pratto et al., 1994). It is anticipated that participants who have high-SDO levels will demonstrate superiority over applicants with disabilities and refuse to hire them.

This study evaluated SDO by using the Pratto and colleagues (1994) scale that determines prejudice and discrimination against outgroups (i.e., people with disabilities). To be clear, disability is not mentioned in this measure, but is used to identify whether the participants react to applicants with disabilities in accordance to their beliefs about social hierarchies. The coefficient alpha reliability estimate, obtained from the literature, of the SDO scale was .90. The items used in this scale are provided in the Appendix (L). The instructions to participants read as follows, "Which of the following statements do you have a positive or negative feeling towards? Circle the response that best characterizes how you feel about the statements below, from: 1 = Very negative, to 7 = Very positive."

Construct Validity. To assess the construct validity of the instrumentation completed by the participants (see Appendix L), a confirmatory factor analysis (CFA) was performed to test measures of the four factors used for inferential tests of the laboratory data, namely (a) P-J Fit, (b) SCM-Competence, (c) SCM-Warmth, and (d) SDO.

Mplus v8 was used to run the hypothesized CFA measurement models for each of the four factors separately. All four models converged. The fit indices for each of the individual CFAs for each of the four factors are presented in Table 23. The χ^2 test of model fit was statistically significant ($p < .05$) for all factors except for P-J Fit, indicating a poor fit of the models with the collected data from the laboratory experiment. For models with about 75 to 200 cases, the chi square test is a reasonable measure of fit. But for models with a larger number of cases, the chi square is almost always statistically significant (Jackson, DeZee, Douglas, and Shimeall, 2005). Therefore, other fit indices were checked to assess model fit. The relative χ^2 value, also referred to as the normed χ^2 value, was computed by dividing the χ^2 index value of each of the fitted models by the model degrees of freedom. A value of 5 or less is considered a good model fit (Schumacker and Lomax, 2004). The factors of P-J Fit and SCM-Competence returned normed χ^2 values of 1.28 and 2.27 respectively. However, the normed χ^2 values for SCM-Warmth and SDO were about the cut-off value of 5.

The desired cut-off value for the root mean square error of approximation (RMSEA) is 0.05 (Hu and Bentler, 1999). Again, the RMSEA values for the SCM-Warmth and SDO factors were above the desired cut-off. The desired cut-off value for the fit index of the standardized root mean square residual (SRMR) is 0.08 (Hugh and

Bentler, 1999). The SRMR value for the SDO construct (0.09) was greater than the desired 0.08 cut-off, but only by 1 percentage point. The desired cut-offs for both the confirmatory fit index (CFI) and the Tucker-Lewis index (TLI) is 0.95 or larger for indication of good model fit (Hu and Bentler, 1999). Three of the four factors return CFI and TLI values about the desired cut-off. The CFI and TLI values for the factor of SDO were lower than the desired threshold.

The factor of P-J Fit returned acceptable values for all of the fit indices checked. However, although the relative and normed χ^2 values were greater than desired for SCM-Competence and SCM-Warmth, the CFI, TLI, and SRMR were within the cut-off ranges for the two factors and thus acceptable fit of the two factors was concluded. Only the factor of SDO indicated poor fit across all fit indices. The SDO has been validated in previous studies and is considered an acceptable measurement tool (Pratto et al., 1994). The poor fit of the SDO factor in this study could be an artifact of the sample responses or the population sampled. Tests are not available to confirm the *reason* for the poor fit of the SDO factor. This ad hoc research was performed only to test the fit of the measurement model with the sample collected in this study. Therefore, modification of the factor structures of the CFA measurement was not performed in an attempt to find a better fit.

Table 23

Fits Indices for the CFA Measurement Models of the Four Factors used in the Laboratory Experiments (N = 241)

Factor	**χ^2 Model Fit**	**Norm. χ^2**	**RMSEA**	**CFI**	**TLI**	**SRMR**	**Acceptable? Y/N**
Preferred (conservative) Cut-off Values	$p > .05$	≤ 5	$\leq .05$ or range or 90% CI ($< 0.05, \leq 0.08$)	$\geq .95$	$\geq .95$	≤ 0.08	---
P-J Fit	$p = .268$	1.28	.034 90% CI (0.00, 0.10)	.999	.997	0.01	Yes
SCM-Competence	$p = .015$	2.27	.073 90% CI (0.03, 0.12)	.977	.962	0.03	Yes
SCM-Warmth	$p < .0005$	5.49	.136 90% CI (0.10, 0.18)	.943	.904	0.05	Yes
SDO	$p < .0005$	6.06	.145 90% CI (0.13, 0.16)	.701	.655	0.09	No

7. Hypotheses Testing for the Laboratory Experiments.

The purpose of the laboratory experiments was to determine whether participants who are conditioned to hire qualified applicants express lower interest toward people with disabilities than their counterparts, among two occupations of high-skill. The study investigated whether participant interest toward applicants is influenced by the presence of disability, particularly when a distraction is introduced in the experimental group. In accordance with Dual Processing, the distraction was intended to provoke instinctive decision making by lab participants when they determined job-fitness toward applicants with disabilities in a stressful time-limited setting.

A single MANCOVA model was tested to address hypotheses 1, 5, 6, and 8. A hierarchical multiple linear regression was tested to address hypothesis 7. All hypothesis tests were performed with SPSS v.22 statistical software. The MANCOVA omnibus model was tested at the 95% level of significance ($p < .05$), with between-subjects effects in the MANCOVA model for the dependent variables tested at a Bonferroni adjusted significance level of $p < .05/4 = .0125$. The hierarchical multiple linear regression was set at a 95% level of significance. The following hypotheses were investigated with the laboratory study findings.

Research Hypothesis 1. People with disabilities are less likely than those without disabilities to receive expressions of employer interest in response to job applications.

Research hypothesis 1 for the laboratory experiments is the same as the research hypothesis for the field experiments. However, it is addressed in the laboratory experiments via MANCOVA comparative analysis of mean differences between the two

disability groups (SCI vs. no disability) on the dependent variable of P-J Fit score according to the following statistical hypotheses:

Null Hypothesis 1(Lab). There is not a statistically significant mean difference between the two disability groups on the P-J Fit scores, or the SCI group will have a significantly greater mean P-J Fit score than the no disability group.

Alternative Hypothesis 1(Lab). The SCI group will have a significantly lower mean P-J Fit score than the no disability group.

Research Hypothesis 5. Employers are less likely to express interest toward applicants with disabilities when they are occupied by distractors than when they are not occupied by distractors.

Research hypothesis 5 was investigated by comparing mean differences on the two levels of the independent variable representing distraction (distracted vs. non-distracted) as relates to interaction terms or main effects, on the dependent variable of P-J Fit in the MANCOVA model.

Null Hypothesis 5. There is not a statistically significant mean difference between the two distraction groups on the P-J Fit scores, or the distracted group will have a significantly greater mean P-J Fit score than the non-distracted group.

Alternative Hypothesis 5. The distracted group will have a significantly lower mean P-J Fit score than the non-distracted group.

Research Hypothesis 6. There will be a greater gap in employer interest between applicants with and without disabilities in accounting than in software development.

Research hypothesis 6 was investigated by investigating the Disability Group X Occupation interaction term as relates to the P-J Fit dependent variable in the MANCOVA model. The following statistical hypotheses will be tested:

Null Hypothesis 6. There is not a statistically significant Disability Group X Occupation interaction term as relates to the P-J Fit dependent variable.

Alternative Hypothesis 6. There is a statistically significant Disability Group X Occupation interaction term as relates to the P-J Fit dependent variable.

Research Hypothesis 7. SDO will moderate the effects of disability on perceived job-fit, such that high-SDO will result in decreased perceptions of job-fit for applicants with disabilities, but there will be no relationship between SDO and perceived job-fit for applicants without disabilities.

Research hypothesis 7 was addressed in the laboratory experiments via a hierarchical multiple linear regression model with the dependent variable of P-J Fit regressed on predictors of SDO and disability type in Step 1, and the interaction of SDO X Disability type in Step 2. Of interest was the interaction effect in Step two. The hierarchical multiple linear regression tested following statistical hypotheses:

Null Hypothesis 7. There is not a statistically significant interaction effect of SDO X Disability type on P-J Fit in Step 2, above the main effects of Step 1.

Alternative Hypothesis 7. There is a statistically significant interaction effect of SDO X Disability type on P-J Fit in Step 2, above the main effects of Step 1.

Research Hypothesis 8. Employers are less likely to perceive high-warmth and high-competence in applicants with disabilities than applicants without disabilities.

Research hypothesis 8 was addressed in the laboratory experiments via MANCOVA comparative analysis of mean differences between the two disability groups (SCI vs. no disability) on the dependent variables of SCM-Warmth score and SCM-Competence score according to the following statistical hypotheses:

Null Hypothesis 8a. There is not a statistically significant mean difference between the two disability groups on the SCM-Warmth scores, or the SCI group will have a significantly greater mean SCM-Warmth score than the no disability group.

Alternative Hypothesis 8a. The SCI group will have a significantly lower mean SCM-Warmth score than the no disability group.

Null Hypothesis 8b. There is not a statistically significant mean difference between the two disability groups on the SCM-Competence scores, or the SCI group will have a significantly greater mean SCM-Competence score than the no disability group.

Alternative Hypothesis 8b. The SCI group will have a significantly lower mean SCM-Competence score than the no disability group.

Study Power for the Laboratory Experiments. The sample size was determined using G*Power 3.1 (Faul, Erdfelder, Lang, and Buchner, 2007). Power is defined as (1-β), where β is the chance of Type II error (i.e., one accepts the null hypothesis when it is, in fact, false). At a power of .80, one has an 80% chance of seeing significance that is truly in the data. Effect size for MANCOVA is Pillai's Trace V [f^2 (V). The effect size was defined as small f^2 (V) = 0.10^2 = 0.01, medium f^2(V) = 0.25^2 = 0.06, or large f^2(V) = 0.40^2 = 0.16 (Cohen, 1992).

The power analysis was performed for a global effects MANCOVA with four independent variables with two levels each and three dependent variables. Criteria for

the a priori power was set at an alpha level of .05, power of .95, and a medium effect size of f^2 (V) = 0.25. A total sample of N = 36 was required to power the omnibus MANCOVA test. Tabachnick and Fidell (2013) state that a sample size rule of thumb is to have at least as many records for each cell as the number of dependent variables in a MANOVA or MANCOVA model. A total of 16 cells will be modeled in the MANCOVA and the number of dependent variables is 4. Therefore, 16 X 4 = 64 records would be required according to the rule of thumb (Tabachnick & Fidell, 2013).

A series of four ANOVA analyses were performed for any of the predictors or interaction effects after significance was found on the omnibus MANCOVA test. Cohen (1992) determined the univariate effects sizes (f) for ANOVA as small (f = .10), medium (f = .25), and large (f = .40). Criteria for the power of the ANOVA analyses was set to determine the power that would be achieved with the sample size of 241 participants collected for this study. To reach a power level of at least 80, at an alpha level of .05, differences between the two levels on any one of the three independent variables can be seen with an effect size of f = .25.

For a bi-variate correlation with a medium effect size of r = .30, a total of 84 participants are required to achieve 80% power. For a hierarchical multiple linear regression with a medium effect size of f^2 = 0.15, 1 tested predictor and 3 total predictors, a total of 55 participants are required to achieve 80% power.

Thus, the collected sample size of N = 241 participants was more than adequate to power the analyses used to test the hypotheses of the laboratory experiments.

RESULTS

1. Overview of the Field Experiments.

Here, the results of the field experiments are presented in a descriptive format as well as with tables. The results are divided into five sections, (a) population and descriptive findings, (b) investigation of assumptions as relates to inferential analysis, (c) presentation of findings for the hierarchical regressions, (d) tests of hypotheses, and (e) investigation and findings from an additional exploratory test. SPSS v22.0 was used for all descriptive and inferential analyses. The inferential analyses were tested at the 95% level of significance.

The purpose of this study was to determine whether employers were less likely to express interest in applicants with disabilities than in those without disabilities, among two occupation types (high-skill and low-skill). It also helped establish whether employer interest in applicants with disabilities was affected by the type of disability, qualification levels, occupational skill levels, and employer size. A series of six logistic regression analyses were performed to investigate the following four research questions and associated statistical hypotheses as follows:

Research Hypothesis 1. People with disabilities are less likely than those without disabilities to receive expressions of employer interest in response to job applications.

Step 2 of all six regression models were investigated according to the following hypothesis tests:

Null Hypothesis 1. None of the disability indicator variables of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impaired included in step two

of models 1, 2, and/or 3, nor the disability aggregated variable included in step 2 of models 4, 5, and/or 6 will significantly contribute to the dependent variable of employer interest, after controlling for the step one variables of applicant qualification and firm size.

Alternative Hypothesis 1. At least one of the three disability indicator variables of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impairment included in step two of models 1, 2, and/or 3, or the disability aggregated variable included in step 2 of models 4, 5, and/or 6 will significantly contribute to the dependent variable of employer interest, after controlling for the step one variables of applicant qualification and firm size.

Research Hypothesis 2. There will be a smaller gap in employer interest between people with and without disabilities among applicants with higher qualifications than among applicants with lower qualifications.

The interaction terms relating to Disability X Applicant Qualification in Step 3 of each of the six hierarchical regression models were investigated to address the following hypothesis tests:

Null Hypothesis 2. None of the Disability X Applicant Qualification moderator variables including the three individual disabilities of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impaired included in step three of models 1, 2, and/or 3, nor the Disability Aggregated X Applicant Qualification interaction included in step 3 of models 4, 5, and/or 6 will be associated with a significant increase in the odds of the dependent variable of employer interest.

Alternative Hypothesis 2. At least one of the Disability X Applicant Qualification moderator variables including the three individual disabilities of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impaired included in step three of models 1, 2, and/or 3, nor the Disability Aggregated X Applicant Qualification interaction included in step 3 of models 4, 5, and/or 6 will be associated with a significant increase in the odds of the dependent variable of employer interest.

Note: Since an increase in the odds ratio was hypothesized, inference of significance was performed for Hypothesis 2 with one-sided tests.

Research Hypothesis 3. There will be a smaller gap in employer interest between people with and without disabilities in the low-skill occupation than in the high-skill occupation.

Regression models 3 and 6, which included all applicants and a dummy coded variable for occupation type, will be investigated to address the hypotheses.

Null Hypothesis 3. The interactions of the disability variables with the high-skill occupation variable will not be associated with a significant decrease in the odds of the dependent variable of employer interest.

Alternative Hypothesis 3. The interactions of the disability variables with the high-skill occupation variable will be associated with significant decreases in the odds of the dependent variable of employer interest.

Research Hypothesis 4. There will be a smaller gap in employer interest between people with and without disabilities in medium and large sized firms, than in smaller sized firms.

The Disability X Firm Size interaction terms in step 3 of all six regression models were investigated to address the following hypotheses:

Null Hypothesis 4. None of the odds ratios relating to employer interest for the interactions of the disability variables with small firm size will be significantly lower than the interaction effects of disability with medium and large firm size.

Alternative Hypothesis 4. At least one of the odds ratios relating to employer interest for the interaction of the disability variables with small firm size will be significantly lower than the interaction effects of disability with medium and large firm size.

2. Population and Descriptive Findings for the Field Experiments.

A total of N = 12,032 job applications with cover letters and résumés were submitted to advertised openings for positions. A total of n = 6,016 applications were sent in response to openings for software engineer positions which were classified as "high-skill" occupations. The remaining n = 6,016 applications were sent in response to openings for data entry clerk positions which were classified as "low-skill" occupations. Cover letters and résumés were divided evenly among applicants who (1) did not mention disability; (2) disclosed the applicant had a spinal cord injury; (3) disclosed the applicant had Post-Traumatic Stress Disorder; and (4) disclosed the applicant was hearing impaired. Further sub-grouping of the applications included equal allocation to applicant qualification, with two groups of (a) novice and (b) expert, and random allocation to firm size, with three groups of (a) small (less than 15 employees), (b) medium, (15 to 99

employees) and (c) large (100 or more employees). Details of the allocation processes are presented in the Chapter 3.

Employer interest was the dependent variable of the study and was classified according to the employers' responses to each of the N = 12,032 applications. Employer interest was dichotomously coded into two groups: interest = 1 vs. no-interest = 0. The schema for coding of the employers' responses, as well as the number of applications classified to each response, are presented in Table 1. Interest was expressed for 1,977 applicants (16.4% of applicants).

Table 1

Classification Schema of Employer Responses onto the Employer Interest Variable (X), and the Number of Applications Coded onto Each Classification (N = 12,032)

Employer Response	Interest (*n*)	No-Interest (n)
Employer scheduled a time to interview the applicant.	X= 1 (1,180)	
Employer provided the applicant with additional items (questionnaire, assessment, etc.) to complete to determine job fit.	X = 1 (478)	
Employer expressed that the job was based in another state from that of the applicant.	X = 1 (38)	
Employer invited the applicant to apply to a different position.	X= 1 (39)	
Employer requested that the applicant provide more credentials (references, complete work history, salary history, etc.) to determine job fit.	X = 1 (151)	
Employer requested that the applicant also apply directly to the company website and/or supply employer with a résumé and cover letter via email.	X = 1 (91)	
Employer expressed any type of disinterest toward the applicant		X = 0 (2,317)
Employer non-response to application		X = 0 (7,738)

Note. X designates the classification group for which the dependent variable of employer interest was coded for logistic regression. Employer interest was coded as Interest = 1, No-Interest = 0.

Table 2 presents the frequency counts and percentages of the classifications for the independent variables of the study according to whether an employer expressed interest in the applicant or not. Of the applications coded as interest, a greater proportion of employers with high skill openings expressed interest (58.5% of interested employers) when compared to employers with low skill openings (41.5%). Employers expressed more interest in applicants with expert skill levels (55.8%) than for applicants with novice skill levels (44.2%). Larger firms expressed the most interest in applicants (44.8%), and only 20% of firms classified as small only expressed employer interest. The four groups of disability types had similar rates of employer interest. However, the PTSD applicants had received the highest percentage of interest at 26.4%.

Table 2

Frequency Counts and Percentages of Independent Variable Levels According to Employer Interest Classification (N = 12,032)

	Employer Interest					
	Interest (*n* = 1,977)			No-Interest (*n* = 10,055)		
Variable	Freq.	*n*%	*N*%	Freq.	*n*%	*N*%
Occupation Type						
Low Skill	821	41.5	6.8	5195	51.7	43.2
High Skill	1156	58.5	9.6	4860	48.3	40.4
Applicant Qualification						
Novice	873	44.2	7.3	5143	51.1	42.7
Expert	1104	55.8	9.2	4912	48.9	40.8
Firm Size						
Small	395	20.0	3.3	2069	20.6	17.2
Medium	697	35.3	5.8	3442	34.2	28.6
Large	885	44.8	7.4	4544	45.2	37.8
Disability Type						
No Disability	484	24.5	4.0	2524	25.1	21.0
SCI	478	24.2	4.0	2530	25.2	21.0
PTSD	522	26.4	4.3	2486	24.7	20.7
HI	493	24.9	4.1	2515	25.0	20.9

Note. SCI = Spinal Cord Injury; PTSD = Post-Traumatic Stress Disorder; HI = Hearing Impaired.

Table 3 presents the frequency counts and percentages of records receiving employer interest (N = 1,977) according to occupation type, applicant qualification, and the disability type of the applicant. Expert level applicants applying to high skill job openings garnered the most employer interest. Conversely, novice level applicants applying to low skill job openings received the least employer interest. Similar to the findings in Table 2, the applicants with PTSD received the greatest amount of interest, in both low skill job openings and high skill job openings.

Table 3

Frequency Counts and Percentages of Employer Interest According to Occupation Type, Applicant Qualification, and Disability Type (N = 12,032)

Occupation Type/Applicant Qualification/Disability Type	Employer Interest	
	Freq.	%
Low Skill (Data Entry Clerk)		
Novice		
No disability	89	11.8
SCI	88	11.7
PTSD	98	13.0
HI	90	11.9
Expert		
No disability	101	13.4
SCI	119	15.8
PTSD	124	16.5
HI	112	14.9
High Skill (Software Developer)		
Novice		
No disability	129	17.2
SCI	113	15.0
PTSD	134	17.8
HI	132	17.6
Expert		
No disability	165	21.9
SCI	158	21.0
PTSD	166	22.1
HI	159	21.1

Note. SCI = Spinal Cord Injury; PTSD = Post-Traumatic Stress Disorder; HI = Hearing Impaired.

3. Assumptions for the Field Experiments Analyses.

A total of six hierarchical logistic regressions were performed to address the research questions of the study. The dataset was investigated to ensure that it satisfied the assumptions of the logistic regression analyses, namely: absence of missing data, absence of outliers, and absence of multicollinearity.

None of the N = 12,032 records were missing data and therefore the assumption of absence of missing data was met.

Logistic regression is sensitive to outliers and multicollinearity (Pallant, 2013). Outliers in a dataset have the potential to distort results of an inferential analysis. Casewise residuals were checked in each regression model to check for outliers pertaining to model fit. A case with a residual value of greater than a magnitude of 2.5 indicates that a model does not fit well for a particular record (Pallant, 2013). Outliers were not detected in the casewise residuals. Therefore, the assumption of absence of outliers was met.

Multicollinearity occurs when independent variables of a study are highly correlated with each other. Highly correlated is defined as a correlation coefficient between two variables of .90 or greater (Pallant, 2013). Multicollinearity between the variables used as independent predictors and control variables in the logistic regressions were performed via Pearson's product-moment correlational analysis. Multicollinearity was not detected for any of the variables used as independent predictors for the logistic regression. Therefore, the assumption of absence of multicollinearity was met.

4. Hierarchical Regression Models and Findings for the Field Experiments.

A total of six hierarchical logistic regressions were modeled to address the hypotheses of the four research questions of this study. Three steps were included in each hierarchical regression model. The first step included the variables of (a) applicant qualification, coded as 0 = novice and 1 = expert, and (b) firm size, dichotomously coded (0 = no, 1 = yes) onto two dummy variables of small and large. The firm size of medium was used as a reference group in the model. In models 3 and 6, an additional variable, occupation type, was included in step 1. Occupation type was coded as 0 = low-skill and 1 = high-skill.

For models 1, 2, and 3, the second step included the variables from the first step and three dichotomously coded dummy variables representing the disabilities of (a) SCI, (b) PTSD, and (c) HI. The variable of "no disability" was used as the reference group in the model. For models 4, 5, and 6, disability was included as one aggregated variable (disability) coded as 1 = any disability and 0 = no disability.

For models 1, 2, and 3, the third step included all the variables from the second step as well as nine variables representing all two-way interactions between the modeled disability types and firm sizes. For models 4, 5, and 6, the third step included all the variables from the second step as well as three two-way interaction terms representing the aggregated disability variable with applicant qualification and firm size.

The reference applicant for each of the regression models was a novice, applying to a firm with 15 to 99 employees (firm size = medium), and without a disability. Each of the six regression models are presented and reported separately. The hypotheses of the study are tested in the next section of this chapter.

Model 1 – Low Skill Occupation, Individual Disability Variables. Results of Hierarchical Regression 1 are presented in Table 4. A test of the step 1 model with the predictors of applicant qualification, firm size = small and firm size = large against a constant only model (no predictors, and assuming no employer interest) was statistically significant according to the Omnibus Tests of Model Coefficients, χ^2 (3) = 17.41, p = .001, indicating that the predictors, as a set, reliably differentiated between applicants classified as employer interest and applicants classified as no interest. The step 1 model's goodness-of-fit was also assessed using the Hosmer and Lemeshow Test, χ^2 (4) = 0.87, p = .929. For this test, a p-value greater than .05 indicates the data fits well with the model. Therefore, goodness-of-fit was indicated for the step 1 model.

Variability of the step 1 model was assessed using two statistics, Cox and Snell R-Square (R^2 = .003) and Nagelkerke R-Square (R^2 = .005). These two tests indicated that less than 1% of the variability in the dependent variable was explained by the predictors of the step 1 model. Percentage accuracy in classification (PAC) of the correct outcome category of employer interest for the step 1 model was 86.4%, which was not an improvement over the base model constant only (no predictors, all cases reported not using protection) percentage correct, also 86.4%.

Wald statistics indicated that two predictors were significantly associated with the outcome of employer interest. Applicant qualification was significant [B = 0.26, OR = 1.30, 95% CI OR = (1.12, 1.51); p = .001]. The odds ratio indicated that an applicant with expert qualifications was approximately 30% more likely to receive employer interest than an applicant who is a novice. Firm size = small was also significant [B = -0.23, OR = 0.80, 95% CI OR = (0.65, 0.98); p = .028]. The odds ratio indicated that an

applicant applying to a small firm was approximately 20% less likely to receive employer interest than an applicant who applied to a medium sized firm.

A test of the step 2 model with the added predictors for disability type was not statistically significant for the step 2 block, χ^2 (3) = 3.02, p = .389, indicating that the variables entered into the step 2 block did not significantly improve the model over the step 1 model. The test of the full step 2 model (the predictors of steps 1 and 2 together) however, was statistically significant [χ2 (6) = 20.43, p = .002].

The step 2 model's goodness-of-fit was also assessed using the Hosmer and Lemeshow Test, χ^2 (8) = 2.97, p = .937. For this test, a p-value greater than .05 indicates the data fits well with the model. Therefore, goodness-of-fit was indicated for the step 2 model.

Variability of the step 2 model was assessed using two statistics, Cox and Snell R-Square (R^2 = .003) and Nagelkerke R-Square (R^2 = .006). These two tests indicated that less than 1% of the variability in the dependent variable was explained by the predictors of the step 2 model. Percentage accuracy in classification (PAC) of the correct outcome category of employer interest for the step 2 model remained at 86.4%, which was not an improvement over the base model constant only (no predictors, all cases reported not using protection) percentage correct, also 86.4%.

Wald statistics indicated that two predictors were significantly associated with the outcome of employer interest. Applicant qualification was significant [B = 0.26, OR = 1.30, 95% CI OR = (1.12, 1.51); p = .001]. The odds ratio indicated that an applicant with expert qualifications was approximately 30% more likely to receive employer interest than an applicant who is a novice. Firm size = small was also significant [B = -

0.23, OR = 0.79, 95% CI OR = (0.65, 0.98); p = .027]. The odds ratio indicated that an applicant applying to a small firm was approximately 21% less likely to receive employer interest than applicant who applied to a medium sized firm.

A test of the step 3 model with the added interaction terms was not statistically significant for the step 3 block, $\chi 2$ (9) = 9.78, p = .369, indicating that the variables entered into the step 3 block did not significantly improve the model over the step 2 model. The test of the full step 3 model (the predictors of steps 1, 2, and 3 together), however, was statistically significant [$\chi 2$ (15) = 30.20, p = .011]. Although the step 3 full model with all the predictors, also called a saturated model, was statistically significant for the omnibus test of model fit, none of the model predictors were statistically significant.

Some possible reasons for a significant model fit, yet no significant predictors, in the saturated step 3 model could be confounding or masking. Confounding occurs when a predictor is associated with both the outcome and one or more other predictors (Pourhoseingholi, Baghestani, and Vahedi, 2012). Since the predictor variables and dependent variable were all dichotomously coded as 0 and 1, and interaction terms were added to the model in the third step, confounding could have occurred such that the value of 0 on one predictor could have been associated with the value of 0 on another predictor (or more), and also associated with a value of 0 on the dependent variable. Or all 1's could be possible. The small proportions of employer interest across all the predictor variables (see Table 2) suggests that too many matches of 0 across the variables may have occurred in the saturated model, especially with the inclusion of the interaction terms.

Masking could have also been the culprit of the significant saturated model with no significant predictors. Masking occurs when so many predictor variables are included in a model that they mask effects of significant predictors. It is possible that a variable, or combinations of variables, could have been masking the effects of significant predictors (Jung, 2009).

Table 4

Hierarchical Logistic Regression of Employer Interest Regressed on Individual Disability Types for Low-Skill Occupation (N =6,016)

Step/Variable	B	*SE* B	Wald χ^2	Sig.	Odds Ratio	95% CI for Odds Ratio Lower	95% CI for Odds Ratio Upper
Step 1							
Appl. qualification	0.26	0.08	12.00	.001	1.30	1.12	1.51
Firm Size = Small	-0.23	0.10	4.81	.028	0.80	0.65	0.98
Firm Size = Large	-0.02	0.08	0.04	.847	0.98	0.83	1.16
Constant	-1.93	0.07	693.07	<.0005	0.15	---	---
Step 1/Model χ^2 =.17.41 Sig. = .001							
Step 2							
Appl. qualification	0.26	0.08	12.01	.001	1.30	1.12	1.51
Firm Size = Small	-0.23	0.10	4.87	.027	0.79	0.65	0.98
Firm Size = Large	-0.02	0.08	0.04	.836	0.98	0.83	1.16
SCI	0.10	0.11	0.83	.363	1.10	0.89	1.36
PTSD	0.18	0.11	2.93	.087	1.20	0.97	1.48
HI	0.07	0.11	0.42	.517	1.07	0.87	1.33
Constant	-2.02	0.10	409.80	<.0005	0.13	---	---
Step 2 χ^2 = 3.02 Sig. = .389 Model χ^2 = 20.43 Sig. = .002							
Step 3							
Appl. qualification	0.14	0.16	0.86	.354	1.16	0.85	1.57
Firm Size = Small	-0.04	0.21	0.03	.862	0.96	0.64	1.46
Firm Size = Large	0.08	0.18	0.23	.632	1.09	0.77	1.54
SCI	0.18	0.21	0.72	.396	1.19	0.79	1.79
PTSD	0.17	0.21	0.69	.408	1.19	0.79	1.78
HI	0.08	0.21	0.15	.695	1.09	0.72	1.65
SCI X Appl. qualification	0.23	0.22	1.12	.291	1.26	0.82	1.93
PTSD X Appl. qualification	0.14	0.21	0.40	.529	1.14	0.75	1.74
HI X Appl. qualification	0.10	0.22	0.21	.651	1.10	0.72	1.69
SCI X Firm Size = Small	-0.28	0.30	0.92	.338	0.75	0.42	1.35
SCI X Firm Size = Large	-0.34	0.24	1.96	.162	0.71	0.44	1.15
PTSD X Firm Size = Small	-0.05	0.29	0.03	.875	0.96	0.54	1.68
PTSD X Firm Size = Large	-0.13	0.24	0.28	.598	0.88	0.55	1.42
HI X Firm Size = Small	-0.51	0.31	2.69	.101	0.60	0.32	1.11
HI X Firm Size = Large	0.06	0.24	0.06	.803	1.06	0.66	1.71
Constant	-2.04	0.15	181.46	<.0005	0.13	---	---
Step 3 χ^2 = 9.77 Sig. = .369 Model χ^2 = 30.20 Sig. = .011							

Note. Sig. = Significance; CI = Confidence Interval; SCI = Spinal Cord Injury; PTSD = Post-Traumatic Stress Disorder; HI = Hearing Impaired. Referent group: Novice, Firm Size = Medium, No Disability.

Model 2 – High Skill Occupation, Individual Disability Variables. Results of Hierarchical Regression 2 are presented in Table 5. A test of the step 1 model with the predictors of applicant qualification, firm size = small and firm size = large against a constant only model (no predictors, and assuming no employer interest) was statistically significant according to the Omnibus Tests of Model Coefficients, χ^2 (3) = 25.06, $p <$ .0005, indicating that the predictors, as a set, reliably differentiated between applicants classified as employer interest and applicants classified as no interest. The step 1 model's goodness-of-fit was also assessed using the Hosmer and Lemeshow Test, χ^2 (4) = 0.15, p = .998. For this test, a p-value greater than .05 indicates the data fits well with the model. Therefore, goodness-of-fit was indicated for the step 1 model.

Variability of the step 1 model was assessed using two statistics, Cox and Snell R-Square (R^2 = .004) and Nagelkerke R-Square (R^2 = .007). These two tests indicated that less than 1% of the variability in the dependent variable was explained by the predictors of the step 1 model. Percentage accuracy in classification (PAC) of the correct outcome category of employer interest for the step 1 model was 80.8%, which was not an improvement over the base model constant only (no predictors, all cases reported not using protection) percentage correct, also 80.8%.

Wald statistics indicated that one predictor, applicant qualification, was significant for the outcome of employer interest [B = 0.29, OR = 1.34, 95% CI OR = (1.18, 1.52); $p <$ .0005]. The odds ratio indicated that an applicant with expert qualifications was approximately 34% more likely to receive employer interest than a novice applicant.

A test of the step 2 model with the added predictors for disability type was not statistically significant for the step 2 block, $\chi 2$ (3) = 1.99, p = .575, indicating that the variables entered into the step 2 block did not significantly improve the model over the step 1 model. However, the test of the full step 2 model (the predictors of steps 1 and 2 together) was statistically significant [$\chi 2$ (6) = 27.05, p < .0005].

Variability of the step 2 model was assessed using two statistics, Cox and Snell R-Square (R^2 = .003) and Nagelkerke R-Square (R^2 = .007). These two tests indicated that less than 1% of the variability in the dependent variable was explained by the predictors of the step 2 model. Percentage accuracy in classification (PAC) of the correct outcome category of employer interest for the step 2 model remained at 80.8%, which was not an improvement over the base model constant only (no predictors, all cases reported not using protection) percentage correct, also 80.8%. Wald statistics indicated that applicant qualification remained significant for the outcome of employer interest [B = 0.29, OR = 1.34, 95% CI OR = (1.18, 1.52); p < .0005]. The odds ratio indicated that an applicant with expert qualifications was approximately 34% more likely to receive employer interest than an applicant who is a novice.

A test of the step 3 model with the added interaction terms was not statistically significant for the step 3 block, χ^2 (9) = 5.27, p = .810, indicating that the variables entered into the step 3 block did not significantly improve the model over the step 2 model. The test of the full step 3 model (the predictors of steps 1, 2, and 3 together), however, was statistically significant [$\chi 2$ (15) = 32.32, p = .006]. The variable of applicant qualification remained significant in the step 3 saturated model [B = 0.31, OR = 1.36, 95% CI OR = (1.05, 1.77); p = .019]. The odds ratio indicated that an applicant

with expert qualifications was approximately 36% more likely to receive employer interest than an applicant who is a novice.

Table 5

Hierarchical Logistic Regression of Employer Interest Regressed on Individual Disability Types for High-Skill Occupation (N =6,016)

Step/Variable	B	*SE* B	Wald χ^2	Sig.	Odds Ratio	95% CI for Odds Ratio Lower	95% CI for Odds Ratio Upper
Step 1							
Appl. qualification	0.29	0.07	19.38	<.0005	1.34	1.18	1.52
Firm Size = Small	0.09	0.09	0.95	.331	1.10	0.91	1.31
Firm Size = Large	0.08	0.07	1.25	.264	0.92	0.80	1.07
Constant	-1.57	0.07	532.99	<.0005	0.21	---	---
Step 1/Model $\chi^2 = 25.06$							
Sig. < .0005							
Step 2							
Appl. qualification	0.29	0.07	19.40	<.0005	1.34	1.18	1.52
Firm Size = Small	0.09	0.09	0.94	.333	1.09	0.91	1.31
Firm Size = Large	-0.08	0.07	1.22	.269	0.92	0.80	1.07
SCI	-0.10	0.09	1.10	.293	0.91	0.75	1.09
PTSD	0.03	0.09	0.08	.778	1.03	0.86	1.23
HI	-0.01	0.09	0.02	.890	0.99	0.82	1.18
Constant	-1.55	0.09	306.98	<.0005	0.21	---	---
Step 2 $\chi^2 = 1.99$							
Sig. = .575							
Model $\chi^2 = 27.05$							
Sig. < .0005							
Step 3							
Appl. qualification	0.31	0.13	5.47	.019	1.36	1.05	1.77
Firm Size = Small	-0.19	0.19	0.95	.330	0.83	0.57	1.21
Firm Size = Large	-0.07	0.15	0.25	.618	0.93	0.70	1.24
SCI	-0.18	0.20	0.83	.362	0.84	0.57	1.23
PTSD	-0.05	0.19	0.06	.812	0.96	0.66	1.39
HI	-0.03	0.19	0.02	.894	0.98	0.67	1.42
SCI X Appl. qualification	0.08	0.19	0.17	.679	1.08	0.75	1.57
PTSD X Appl. qualification	-0.05	0.19	0.06	.801	0.95	0.66	1.37
HI X Appl. qualification	-0.09	0.19	0.23	.633	0.92	0.64	1.32
SCI X Firm Size = Small	0.36	0.27	1.77	.184	1.43	0.84	2.42
SCI X Firm Size = Large	-0.07	0.21	0.10	.750	0.94	0.62	1.42
PTSD X Firm Size = Small	0.35	0.27	1.71	.191	1.41	0.84	2.38
PTSD X Firm Size = Large	0.07	0.21	0.10	.752	1.07	0.71	1.60
HI X Firm Size = Small	0.39	0.27	2.21	.137	1.48	0.88	2.49
HI X Firm Size = Large	-0.03	0.21	0.03	.873	0.97	0.64	1.46
Constant	-1.51	0.14	123.23	<.0005	0.22	---	---
Step 3 $\chi^2 = 5.27$							
Sig. = .810							
Model $\chi^2 = 32.32$							
Sig. = .006							

Note. Sig. = Significance; CI = Confidence Interval; SCI = Spinal Cord Injury; PTSD = Post-Traumatic Stress Disorder; HI = Hearing Impaired. Referent group: Novice, Firm Size = Medium, No Disability.

Model 3 – All Occupation Types, Individual Disability Variables. Results of Hierarchical Regression 3 are presented in Table 6. A test of the step 1 model with the predictors of applicant qualification, occupation type, firm size = small and firm size = large against a constant only model (no predictors, and assuming no employer interest) was statistically significant according to the Omnibus Tests of Model Coefficients, χ^2 (4) = 101.99, $p < .0005$, indicating that the predictors, as a set, reliably differentiated between applicants classified as employer interest and applicants classified as no interest. The step 1 model's goodness-of-fit was also assessed using the Hosmer and Lemeshow Test, χ^2 (8) = 7.10, $p = .526$. For this test, a p-value greater than .05 indicates the data fits well with the model. Therefore, goodness-of-fit was indicated for the step 1 model.

Variability of the step 1 model was assessed using two statistics, Cox and Snell R-Square ($R^2 = .008$) and Nagelkerke R-Square ($R^2 = .014$). These two tests indicated that 1% to 1.5% of the variability in the dependent variable was explained by the predictors of the step 1 model. Percentage accuracy in classification (PAC) of the correct outcome category of employer interest for the step 1 model was 83.6%, which was not an improvement over the base model constant only (no predictors, all cases reported not using protection) percentage correct, also 83.6%.

Wald statistics indicated that two predictors were significant. Applicant qualification was significant for the outcome of employer interest [B = 0.28, OR = 1.33, 95% CI OR = (1.20, 1.46); $p < .0005$]. The odds ratio indicated that an applicant with expert qualifications was approximately 33% more likely to receive employer interest than an applicant who is a novice. Occupation type was also statistically significant [B = 0.41, OR = 1.51, 95% CI OR = (1.37, 1.66); $p < .0005$]. The odds ratio indicated that an

applicant who applied to a high skill position was approximately 51% more likely to receive employer interest than applicant who applied to a low-skill position.

A test of the step 2 model with the added predictors for disability type was not statistically significant for the step 2 block, $\chi 2$ (3) = 2.75, p = .432, indicating that the variables entered into the step 2 block did not significantly improve the model over the step 1 model. However, the test of the full step 2 model (the predictors of steps 1 and 2 together) was statistically significant [$\chi 2$ (7) = 104.74, p < .0005]. Applicant qualification remained significant for the outcome of employer interest, [B = 0.28, OR = 1.33, 95% CI OR = (1.20, 1.46); p < .0005]. The odds ratio indicated that an applicant with expert qualifications was approximately 33% more likely to receive employer interest than an applicant who is a novice. Occupation type also remained significant [B = 0.41, OR = 1.51, 95% CI OR = (1.37, 1.67); p < .0005]. The odds ratio indicated that an applicant who applied to a high skill position was approximately 51% more likely to receive employer interest than applicant who applied to a low-skill position.

A test of the step 3 model with the added interaction terms was not statistically significant for the step 3 block, χ^2 (12) = 7.39, p = .831, indicating that the variables entered into the step 3 block did not significantly improve the model over the step 2 model. The test of the full step 3 model (the predictors of steps 1, 2, and 3 together), however, was statistically significant [$\chi 2$ (19) = 112.13, p < .0005]. Applicant qualification remained significant for the outcome of employer interest, [B = 0.24, OR = 1.28, 95% CI OR = (1.05, 1.56); p = .015]. The odds ratio indicated that an applicant with expert qualifications was approximately 28% more likely to receive employer interest than an applicant who is a novice. Occupation type also remained significant [B

= 0.52, OR = 1.68, 95% CI OR = (1.37, 2.05); $p < .0005$]. The odds ratio indicated that an applicant who applied to a high skill position was approximately 68% more likely to receive employer interest than applicant who applied to a low-skill position.

Table 6
Hierarchical Logistic Regression of Employer Interest Regressed on Individual Disability Types for Both Occupation Types (N =12,032)

Step/Variable	B	*SE* B	Wald χ^2	Sig.	Odds Ratio	95% CI for Odds Ratio Lower	Upper
Step 1							
Appl. qualification	0.28	0.05	32.28	<.0005	1.33	1.20	1.46
Occupation type	0.41	0.05	67.70	<.0005	1.51	1.37	1.66
Firm Size = Small	-0.06	0.07	0.66	.416	0.95	0.83	1.08
Firm Size = Large	-0.06	0.06	1.10	.294	0.94	0.85	1.05
Constant	-1.96	0.06	1180.71	<.0005	0.14	---	---
Step 1/Model χ^2 =.101.99							
Sig. < .0005							
Step 2							
Appl. qualification	0.28	0.05	32.30	<.0005	1.33	1.20	1.46
Occupation type	0.41	0.05	67.70	<.0005	1.51	1.37	1.67
Firm Size = Small	-0.06	0.07	0.67	.415	0.95	0.83	1.08
Firm Size = Large	-0.06	0.07	1.08	.299	0.94	0.85	1.05
SCI	-0.01	0.07	0.04	.839	0.99	0.86	1.13
PTSD	0.09	0.07	1.74	.187	1.10	0.96	1.26
HI	0.02	0.07	0.10	.750	1.02	0.89	1.17
Constant	-1.98	0.07	769.48	<.0005	0.14	---	---
Step 2 χ^2 = 2.75							
Sig. = .432							
Model χ^2 = 104.74							
Sig. < .0005							
Step 3							
Appl. qualification	0.24	0.10	5.92	.015	1.28	1.05	1.56
Occupation type	0.52	0.10	25.83	<.0005	1.68	1.37	2.05
Firm Size = Small	-0.12	0.14	0.73	.393	0.89	0.67	1.17
Firm Size = Large	-0.01	0.11	0.02	.899	0.99	0.79	1.23
SCI	0.09	0.16	0.30	.587	1.09	0.79	1.51
PTSD	0.13	0.16	0.70	.404	1.14	0.84	1.57
HI	0.06	0.16	0.15	.694	1.07	0.78	1.47
SCI X Appl. qualification	0.13	0.14	0.88	.350	1.14	0.86	1.51
PTSD X Appl. qualification	0.03	0.14	0.03	.853	1.03	0.78	1.35
HI X Appl. qualification	-0.01	0.14	0.01	.979	1.00	0.76	1.31
SCI X Firm Size = Small	0.06	0.20	0.09	.762	1.06	0.72	1.57
SCI X Firm Size = Large	-0.18	0.16	1.32	.251	0.83	0.61	1.14
PTSD X Firm Size = Small	0.17	0.20	0.72	.397	1.18	0.81	1.73
PTSD X Firm Size = Large	-0.01	0.16	0.01	.944	0.99	0.73	1.35
HI X Firm Size = Small	0.02	0.20	0.01	.933	1.02	0.69	1.50
HI X Firm Size = Large	0.01	0.16	0.01	.942	1.01	0.74	1.38
SCI X Occupation type	-0.19	0.14	1.69	.194	0.83	0.63	1.10
PTSD X Occupation type	-0.15	0.14	1.10	.295	0.86	0.65	1.14
HI X Occupation type	-0.08	0.14	0.34	.559	0.92	0.70	1.22
Constant	-2.03	0.12	306.27	<.0005	0.13	---	---
Step 3 χ^2 = 7.39							
Sig. = .831							
Model χ^2 = 112.13							
Sig. < .0005							

Note. Sig. = Significance; CI = Confidence Interval; SCI = Spinal Cord Injury; PTSD = Post-Traumatic Stress Disorder; HI = Hearing Impaired. Referent group: Novice, Firm Size = Medium, No Disability.

Model 4 – Low Skill Occupation, Aggregated Disability Variable. Results of Hierarchical Regression 4 are presented in Table 7. A test of the step 1 model with the predictors of applicant qualification, firm size = small and firm size = large against a constant only model (no predictors, and assuming no employer interest) was statistically significant according to the Omnibus Tests of Model Coefficients, χ^2 (3) = 17.41, p = .001 indicating that the predictors, as a set, reliably differentiated between applicants classified as employer interest and applicants classified as no interest. The step 1 model's goodness-of-fit was also assessed using the Hosmer and Lemeshow Test, χ^2 (4) = 0.87, p = .929. For this test, a p-value greater than .05 indicates the data fits well with the model. Therefore, goodness-of-fit was indicated for the step 1 model.

Variability of the step 1 model was assessed using two statistics, Cox and Snell R-Square (R^2 = .003) and Nagelkerke R-Square (R^2 = .005). These two tests indicated that less than 1% of the variability in the dependent variable was explained by the predictors of the step 1 model. Percentage accuracy in classification (PAC) of the correct outcome category of employer interest for the step 1 model was 86.4%, which was not an improvement over the base model constant only (no predictors, all cases reported not using protection) percentage correct, also 86.4%.

Wald statistics indicated that two predictors were significantly associated with the outcome of employer interest. Applicant qualification was significant [B = 0.26, OR = 1.30, 95% CI OR = (1.12, 1.51); p = .001]. The odds ratio indicated that an applicant with expert qualifications was approximately 30% more likely to receive employer interest than an applicant who is a novice. Firm size = small was also significant [B = -0.23, OR = 0.80, 95% CI OR = (0.65, 0.98); p = .028]. The odds ratio indicated that an

applicant applying to a small firm was approximately 20% less likely to receive employer interest than applicant who applied to a medium sized firm.

A test of the step 2 model with the added predictors for disability type was not statistically significant for the step 2 block, χ^2 (1) = 1.78, p = .182, indicating that the variables entered into the step 2 block did not significantly improve the model over the step 1 model. The test of the full step 2 model (the predictors of steps 1 and 2 together) however, was statistically significant [χ2 (4) = 19.19, p = .001].

The step 2 model's goodness-of-fit was also assessed using the Hosmer and Lemeshow Test, χ^2 (7) = 1.55, p = .981. For this test, a p-value greater than .05 indicates the data fits well with the model. Therefore, goodness-of-fit was indicated for the step 2 model.

Variability of the step 2 model was assessed using two statistics, Cox and Snell R-Square (R^2 = .003) and Nagelkerke R-Square (R^2 = .006). These two tests indicated that less than 1% of the variability in the dependent variable was explained by the predictors of the step 2 model. Percentage accuracy in classification (PAC) of the correct outcome category of employer interest for the step 2 model remained at 86.4%, which was not an improvement over the base model constant only (no predictors, all cases reported not using protection) percentage correct, also 86.4%.

Wald statistics indicated that two predictors were significantly associated with the outcome of employer interest. Applicant qualification was significant [B = 0.26, OR = 1.30, 95% CI OR = (1.12, 1.51); p = .001]. The odds ratio indicated that an applicant with expert qualifications was approximately 30% more likely to receive employer interest than an applicant who is a novice. Firm size = small was also significant [B = -

0.23, OR = 0.80, 95% CI OR = (0.65, 0.98); p = .028]. The odds ratio indicated that an applicant applying to a small firm was approximately 20% less likely to receive employer interest than applicant who applied to a medium sized firm.

A test of the step 3 model with the added interaction terms was not statistically significant for the step 3 block, $\chi 2$ (3) = 1.81, p = .613, indicating that the variables entered into the step 3 block did not significantly improve the model over the step 2 model. The test of the full step 3 model (the predictors of steps 1, 2, and 3 together), however, was statistically significant [$\chi 2$ (7) = 21.00, p = .004]. Although the step 3 full model with all the predictors was statistically significant for the omnibus test of model fit, none of the model predictors were statistically significant. This finding was similar to the finding for model 1, and some reasons for the discrepancy are again presented in the following paragraphs.

Some possible reasons for a significant model fit, yet no significant predictors, in the saturated step 3 model could be confounding or masking. Confounding occurs when a predictor is associated with both the outcome and one or more other predictors (Pourhoseingholi et al., 2012). Since the predictor variables and dependent variable were all dichotomously coded as 0 and 1, and interaction terms were added to the model in the third step, confounding could have occurred such that the value of 0 on one predictor could have been associated with the value of 0 on another predictor (or more) and also associated with a value of 0 on the dependent variable. Or all 1's could be possible. The small proportions of employer interest across all the predictor variables (see Table 2) suggests that too many matches of 0 across the variables may have occurred in the saturated model, especially with the inclusion of the interaction terms.

Masking could have also been the culprit of the significant saturated model with no significant predictors. Masking occurs when so many predictor variables are included in a model that they mask effects of significant predictors. It is possible that a variable, or combinations of variables, could have been masking the effects of significant predictors (Jung, 2009).

Table 7

Hierarchical Logistic Regression of Employer Interest Regressed on Aggregated Disability Type (yes/no) for Low-Skill Occupation (N =6,016)

Step/Variable	B	*SE* B	Wald χ^2	Sig.	Odds Ratio	95% CI for Odds Ratio	
						Lower	Upper
Step 1							
Appl. qualification	0.26	0.08	12.00	.001	1.30	1.12	1.51
Firm Size = Small	-0.23	0.10	4.81	.028	0.80	0.65	0.98
Firm Size = Large	-0.02	0.08	0.04	.847	0.98	0.83	1.16
Constant	-1.93	0.07	693.07	<.0005	0.15	---	---
Step 1/Model χ^2 = 17.41 Sig. = .001							
Step 2							
Appl. qualification	0.26	0.08	12.00	.001	1.30	1.12	1.51
Firm Size = Small	-0.23	0.10	4.84	.028	0.80	0.65	0.98
Firm Size = Large	-0.02	0.08	0.05	.833	0.98	0.83	1.16
Disability	0.12	0.09	1.76	.185	1.13	0.95	1.34
Constant	-2.02	0.10	409.74	<.0005	0.13	---	---
Step 2 χ^2 = 1.78 Sig. = .182							
Model χ^2 = 19.19 Sig. = .001							
Step 3							
Appl. qualification	0.14	0.16	0.86	.354	1.16	0.85	1.57
Firm Size = Small	-0.04	0.21	0.03	.862	0.96	0.64	1.46
Firm Size = Large	0.08	0.18	0.23	.632	1.09	0.77	1.54
Disability	0.14	0.17	0.69	.406	1.15	0.82	1.62
Disability X Appl. qualification	0.15	0.18	0.75	.387	1.17	0.82	1.65
Disability X Firm Size = Small	-0.25	0.24	1.09	.297	0.78	0.48	1.25
Disability X Firm Size = Large	-0.13	0.20	0.44	.505	0.88	0.59	1.30
Constant	-2.04	0.15	181.46	<.0005	0.13	---	---
Step 3 χ^2 = 1.81 Sig. = .613							
Model χ^2 = 21.00 Sig. = .004							

Note. Sig. = Significance; CI = Confidence Interval; Disability = Disability Aggregated (yes/no). Referent group: Novice, Firm Size = Medium, No Disability.

Model 5 – High Skill Occupation Types, Aggregated Disability Variable.

Results of Hierarchical Regression 5 are presented in Table 8. A test of the step 1 model with the predictors of applicant qualification, firm size = small and firm size = large against a constant only model (no predictors, and assuming no employer interest) was statistically significant according to the Omnibus Tests of Model Coefficients, χ^2 (3) = 25.06, $p < .0005$, indicating that the predictors, as a set, reliably differentiated between applicants classified as employer interest and applicants classified as no interest. The step 1 model's goodness-of-fit was also assessed using the Hosmer and Lemeshow Test, χ^2 (4) = 0.15, $p = .998$. For this test, a p-value greater than .05 indicates the data fits well with the model. Therefore, goodness-of-fit was indicated for the step 1 model.

Variability of the step 1 model was assessed using two statistics, Cox and Snell R-Square ($R^2 = .004$) and Nagelkerke R-Square ($R^2 = .007$). These two tests indicated that less than 1% of the variability in the dependent variable was explained by the predictors of the step 1 model. Percentage accuracy in classification (PAC) of the correct outcome category of employer interest for the step 1 model was 80.8%, which was not an improvement over the base model constant only (no predictors, all cases reported not using protection) percentage correct, also 80.8%.

Wald statistics indicated that one predictor, applicant qualification, was significant for the outcome of employer interest [B = 0.29, OR = 1.34, 95% CI OR = (1.18, 1.52); $p < .0005$]. The odds ratio indicated that an applicant with expert qualifications was approximately 34% more likely to receive employer interest than an applicant who is a novice.

A test of the step 2 model with the added predictors for disability type was not statistically significant for the step 2 block, $\chi 2$ (1) = 0.13, p = .715, indicating that the variables entered into the step 2 block did not significantly improve the model over the step 1 model. However, the test of the full step 2 model (the predictors of steps 1 and 2 together) was statistically significant [$\chi 2$ (4) = 25.20, p < .0005].

Variability of the step 2 model was assessed using two statistics, Cox and Snell R-Square (R^2 = .004) and Nagelkerke R-Square (R^2 = .007). These two tests indicated that less than 1% of the variability in the dependent variable was explained by the predictors of the step 2 model. Percentage accuracy in classification (PAC) of the correct outcome category of employer interest for the step 2 model remained at 80.8%, which was not an improvement over the base model constant only (no predictors, all cases reported not using protection) percentage correct, also 80.8%. Wald statistics indicated that applicant qualification remained significant for the outcome of employer interest [B = 0.29, OR = 1.34, 95% CI OR = (1.18, 1.52); p < .0005]. The odds ratio indicated that an applicant with expert qualifications was approximately 34% more likely to receive employer interest than an applicant who is a novice.

A test of the step 3 model with the added interaction terms was not statistically significant for the step 3 block, χ^2 (3) = 3.73, p = .292, indicating that the variables entered into the step 3 block did not significantly improve the model over the step 2 model. The test of the full step 3 model (the predictors of steps 1, 2, and 3 together), however, was statistically significant [$\chi 2$ (7) = 28.93, p < .0005]. The variable of applicant qualification remained significant in the step 3 saturated model [B = 0.31, OR = 1.36, 95% CI OR = (1.05, 1.77); p = .019]. The odds ratio indicated that an applicant

with expert qualifications was approximately 36% more likely to receive employer interest than an applicant who is a novice.

Table 8

Hierarchical Logistic Regression of Employer Interest Regressed on Aggregated Disability Type (yes/no) for High-Skill Occupation (N =6,016)

Step/Variable	B	*SE* B	Wald χ^2	Sig.	Odds Ratio	95% CI for Odds Ratio	
						Lower	Upper
Step 1							
Appl. qualification	0.29	0.07	19.38	<.0005	1.34	1.18	1.52
Firm Size = Small	0.09	0.09	0.95	.331	1.10	0.91	1.31
Firm Size = Large	-0.08	0.07	1.25	.264	0.92	0.80	1.07
Constant	-1.57	0.07	532.99	<.0005	0.21	---	---
Step 1/Model χ^2 = 25.06 Sig. < .0005							
Step 2							
Appl. qualification	0.29	0.07	19.38	<.0005	1.34	1.18	1.52
Firm Size = Small	0.09	0.09	0.94	.332	1.09	0.91	1.31
Firm Size = Large	-0.08	0.07	1.25	.264	0.92	0.80	1.07
Disability	-0.03	0.08	0.13	.715	0.97	0.84	1.13
Constant	-1.55	0.09	306.79	<.0005	0.21	---	---
Step 2 χ^2 = 0.13 Sig. = .715							
Model χ^2 = 25.20 Sig. < .0005							
Step 3							
Appl. qualification	0.31	0.13	5.47	.019	1.36	1.05	1.77
Firm Size = Small	-0.19	0.19	0.95	.330	0.83	0.57	1.21
Firm Size = Large	-0.07	0.15	0.25	.618	0.93	0.70	1.24
Disability	-0.08	0.16	0.27	.608	0.92	0.68	1.26
Disability X Appl. qualification	-0.02	00.15	0.02	.893	0.98	0.73	1.32
Disability X Firm Size = Small	0.37	0.22	2.80	.094	1.44	0.94	2.21
Disability X Firm Size = Large	-0.01	0.17	0.01	.940	0.99	0.71	1.38
Constant	-1.51	0.14	123.23	<.0005	0.22	---	---
Step 3 χ^2 = 3.73 Sig. = .292							
Model χ^2 = 28.93 Sig. < .0005							

Note. Sig. = Significance; CI = Confidence Interval; Disability = Disability Aggregated (yes/no). Referent group: Novice, Firm Size = Medium, No Disability.

Model 6 – All Occupation Types, Aggregated Disability Variable. Results of Hierarchical Regression 6 are presented in Table 9. A test of the step 1 model with the predictors of applicant qualification, occupation type, firm size = small and firm size = large against a constant only model (no predictors, and assuming no employer interest) was statistically significant according to the Omnibus Tests of Model Coefficients, χ^2 (4) = 101.99, $p < .0005$, indicating that the predictors, as a set, reliably differentiated between applicants classified as employer interest and applicants classified as no interest. The step 1 model's goodness-of-fit was also assessed using the Hosmer and Lemeshow Test, χ^2 (8) = 7.10, $p = .526$. For this test, a p-value greater than .05 indicates the data fits well with the model. Therefore, goodness-of-fit was indicated for the step 1 model.

Variability of the step 1 model was assessed using two statistics, Cox and Snell R-Square ($R^2 = .008$) and Nagelkerke R-Square ($R^2 = .014$). These two tests indicated that 1% to 1.5% of the variability in the dependent variable was explained by the predictors of the step 1 model. Percentage accuracy in classification (PAC) of the correct outcome category of employer interest for the step 1 model was 83.6%, which was not an improvement over the base model constant only (no predictors, all cases reported not using protection) percentage correct, also 83.6%.

Wald statistics indicated that two predictors were significant. Applicant qualification was significant for the outcome of employer interest [B = 0.28, OR = 1.33, 95% CI OR = (1.20, 1.46); $p < .0005$]. The odds ratio indicated that an applicant with expert qualifications was approximately 33% more likely to receive employer interest than an applicant who is a novice. Occupation type was also statistically significant [B = 0.41, OR = 1.51, 95% CI OR = (1.37, 1.66); $p < .0005$]. The odds ratio indicated that an

applicant who applied to a high skill position was approximately 51% more likely to receive employer interest than applicant who applied to a low-skill position.

A test of the step 2 model with the added predictors for disability type was not statistically significant for the step 2 block, $\chi 2$ (1) = 0.35, p = .554, indicating that the variables entered into the step 2 block did not significantly improve the model over the step 1 model. However, the test of the full step 2 model (the predictors of steps 1 and 2 together) was statistically significant [$\chi 2$ (5) = 102.34, p < .0005]. Applicant qualification remained significant for the outcome of employer interest, [B = 0.28, OR = 1.33, 95% CI OR = (1.20, 1.46); p < .0005]. The odds ratio indicated that an applicant with expert qualifications was approximately 33% more likely to receive employer interest than an applicant who is a novice. Occupation type also remained significant [B = 0.41, OR = 1.51, 95% CI OR = (1.37, 1.67); p < .0005]. The odds ratio indicated that an applicant who applied to a high skill position was approximately 51% more likely to receive employer interest than applicant who applied to a low-skill position.

A test of the step 3 model with the added interaction terms was not statistically significant for the step 3 block, χ^2 (4) = 2.74, p = .602, indicating that the variables entered into the step 3 block did not significantly improve the model over the step 2 model. The test of the full step 3 model (the predictors of steps 1, 2, and 3 together), however, was statistically significant [$\chi 2$ (9) = 105.08, p < .0005]. Applicant qualification remained significant for the outcome of employer interest, [B = 0.24, OR = 1.28, 95% CI OR = (1.05, 1.56); p = .015]. The odds ratio indicated that an applicant with expert qualifications was approximately 28% more likely to receive employer interest than an applicant who is a novice. Occupation type also remained significant [B

= 0.52, OR = 1.68, 95% CI OR = (1.37, 2.05); $p < .0005$]. The odds ratio indicated that an applicant who applied to a high skill position was approximately 68% more likely to receive employer interest than applicant who applied to a low-skill position.

Table 9

Hierarchical Logistic Regression of Employer Interest Regressed on Aggregated Disability Type (yes/no) for Both Occupation Types (N =12,032)

Step/Variable	B	*SE* B	Wald χ^2	Sig.	Odds Ratio	95% CI for Odds Ratio Lower	95% CI for Odds Ratio Upper
Step 1							
Appl. qualification	0.28	0.05	32.28	<.0005	1.33	1.20	1.46
Occupation type	0.41	0.05	67.70	<.0005	1.51	1.37	1.66
Firm Size = Small	-0.06	0.07	0.66	.416	0.95	0.83	1.08
Firm Size = Large	-0.06	0.06	1.10	.294	0.94	0.85	1.05
Constant	-1.96	0.06	1180.71	<.0005	0.14	---	---
Step 1/Model χ^2 =.101.99							
Sig. < .0005							
Step 2							
Appl. qualification	0.28	0.05	32.28	<.0005	1.33	1.20	1.46
Occupation type	0.41	0.05	67.71	<.0005	1.51	1.37	1.67
Firm Size = Small	-0.06	0.07	0.66	.416	0.95	0.83	1.08
Firm Size = Large	-0.06	0.06	1.11	.292	0.94	0.85	1.05
Disability	0.03	0.06	0.35	.555	1.03	0.92	1.16
Constant	-1.98	0.07	769.27	<.0005	0.14	---	---
Step 2 χ^2 = 0.35							
Sig. = .554							
Model χ^2 = 102.34							
Sig. < .0005							
Step 3							
Appl. qualification	0.24	0.10	5.92	.015	1.28	1.05	1.56
Occupation type	0.52	0.10	25.83	<.0005	1.68	1.37	2.05
Firm Size = Small	-0.12	0.14	0.73	.393	0.89	0.67	1.17
Firm Size = Large	-0.01	0.11	0.02	.899	0.99	0.79	1.23
Disability	0.10	0.13	0.52	.472	1.10	0.85	1.43
Disability X Appl. qualification	0.05	0.12	0.20	.656	1.05	0.84	1.32
Disability X Firm Size = Small	0.09	0.16	0.27	.602	1.09	0.79	1.50
Disability X Firm Size = Large	-0.06	0.13	0.22	.642	0.94	0.73	1.21
Disability X Occupation type	-0.14	0.12	1.42	.234	0.87	0.69	1.10
Constant	-2.03	0.12	306.27	<.0005	0.13	---	---
Step 3 χ^2 = 2.74							
Sig. = .602							
Model χ^2 = 105.08							
Sig. < .0005							

Note. Sig. = Significance; CI = Confidence Interval; Disability = Disability Aggregated (yes/no). Referent group: Novice, Firm Size = Medium, No Disability.

5. Tests of Hypotheses for the Field Experiments.

The six hierarchical logistic regression models were used to test the four sets of statistical hypotheses. The results of the hypothesis tests are presented according to each research question and associated statistical hypothesis.

Research Hypothesis 1. People with disabilities are less likely than those without disabilities to receive expressions of employer interest in response to job applications.

Step 2 of all six regression models were investigated according to the following hypothesis tests:

Null Hypothesis 1. None of the disability indicator variables of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impaired included in step two of models 1, 2, and/or 3, nor the disability aggregated variable included in step 2 of models 4, 5, and/or 6 will significantly contribute to the dependent variable of employer interest, after controlling for the step one variables of applicant qualification and firm size.

Alternative Hypothesis 1. At least one of the three disability indicator variables of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impaired included in step two of models 1, 2, and/or 3, or the disability aggregated variable included in step 2 of models 4, 5, and/or 6 will significantly contribute to the dependent variable of employer interest, after controlling for the step one variables of applicant qualification and firm size.

Conclusion as relates to Null Hypothesis 1. None of the individual disability variables included in step 2 of regression models 1, 2, or 3, and the aggregated disability

variable included in step 2 or regressions 4, 5, and 6 were statistically significant predictors of the dependent variable of employer interest. Therefore, do not reject Null Hypothesis 1. There is not sufficient evidence to indicate that at least one of the three disability indicator variables of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impaired included in step two of models 1, 2, and/or 3, or the disability aggregated variable included in step 2 of models 4, 5, and/or 6 significantly contribute to the dependent variable of employer interest, after controlling for the step one variables of applicant qualification and firm size.

Research Hypothesis 2. There will be a smaller gap in employer interest between people with and without disabilities among applicants with higher qualifications than among applicants with lower qualifications.

The interaction terms relating to Disability X Applicant Qualification in Step 3 of each of the six hierarchical regression models were investigated to address the following hypothesis tests:

Null Hypothesis 2. None of the Disability X Applicant Qualification moderator variables including the three individual disabilities of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (d) hearing impaired included in step three of models 1, 2, and/or 3, nor the Disability Aggregated X Applicant Qualification interaction included in step 3 of models 4, 5, and/or 6 will be associated with a significant increase in the odds of the dependent variable of employer interest.

Alternative Hypothesis 2. At least one of the Disability X Applicant Qualification moderator variables including the three individual disabilities of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impaired included in step three of

models 1, 2, and/or 3, nor the Disability Aggregated X Applicant Qualification interaction included in step 3 of models 4, 5, and/or 6 will be associated with a significant increase in the odds of the dependent variable of employer interest.

Conclusion as relates to Null Hypothesis 2. Since an increase in the odds ratio was hypothesized, inference of significance was performed for Hypothesis 2 with one-sided tests. The p-values of the Disability X Applicant Qualification interaction terms in step 3 of the regression models were divided by ½ to test for 1-sided significance. After dividing the p-values, they were still above the $p < .05$ threshold for significance. Therefore, do not reject Null Hypothesis 2. There is not sufficient evidence to indicate that at least one of the Disability X Applicant Qualification moderator variables including the three individual disabilities of (a) spinal cord injury, (b) post-traumatic stress disorder, and/or (c) hearing impaired included in step three of models 1, 2, and/or 3, nor the Disability Aggregated X Applicant Qualification interaction included in step 3 of models 4, 5, and/or 6 are associated with a significant increase in the odds of the dependent variable of employer interest.

Research Hypothesis 3. There will be a smaller gap in employer interest between people with and without disabilities in the low-skill occupation than in the high-skill occupation.

Regression models 3 and 6, which will include all applicants and a dummy coded variable for occupation type, were investigated to address the hypotheses.

Null Hypothesis 3. The interactions of the disability variables with the high-skill occupation variable will not be associated with a significant decrease in the odds of the dependent variable of employer interest.

Alternative Hypothesis 3. The interactions of the disability variables with the high-skill occupation variable will be associated with significant decreases in the odds of the dependent variable of employer interest.

Conclusion as relates to Null Hypothesis 3. Although the occupation type variable alone, the main effect, was statistically significant in both regression models 3 and 6, the interaction terms involving occupation type were not statistically significant. Therefore, do not reject Null Hypothesis 3. There is not sufficient evidence to indicate that the interactions of the disability variables with the high-skill occupation variable are associated with significant decreases in the odds of the dependent variable of employer interest.

Research Hypothesis 4. There will be a smaller gap in employer interest between people with and without disabilities in medium and large sized firms, than in smaller sized firms.

The Disability X Firm Size interaction terms in step 3 of all six regression models were investigated to address the following hypotheses:

Null Hypothesis 4. None of the odds ratios relating to employer interest for the interactions of the disability variables with small firm size will be significantly lower than the interaction effects of disability with medium and large firm size.

Alternative Hypothesis 4. At least one of the odds ratios relating to employer interest for the interaction of the disability variables with small firm size will be significantly lower than the interaction effects of disability with medium and large firm size.

Conclusion as relates to Null Hypothesis 4. None of the Firm Size X Disability interaction terms were statistically significant in any of the six regression models. Therefore, do not reject Null Hypothesis 4. There is not sufficient evidence to indicate that at least one of the odds ratios relating to employer interest for the interaction of the disability variables with small firm size was significantly lower than the interaction effects of disability with medium and large firm size.

6. Summary of the Field Experiments.

Significance was found for the application qualification variable in steps 1 and 2 of all six regression models, and for step 3 in regression models 2, 3, 5, and 6. The variable of occupation type was significant in all steps (steps 1, 2, and 3) for regression models 3 and 6. The variable of firm size = small was significant in steps 1 and 2 of regression models 1 and 4.

No other significant main effects were found. Significance was also not found for any of the interaction terms in the six regression models. None of the four research hypotheses were supported. Table 10 presents a summary of the field experiment analysis findings.

The results from two laboratory experiments are presented next, followed by a discussion of the results and implications of both studies, as they relate to the literature review.

Table 10

Summary of Regression Model Findings

Model/Step	Variable	Odds Ratio	p-value	Table Number
Model 1				
Step 1	Appl. qualification	1.30	.001	4
Step 1	Firm size = small	0.80	.028	4
Step 2	Appl. qualification	1.30	.001	4
Step 2	Firm size = small	0.79	.027	4
Model 2				
Step 1	Appl. qualification	1.34	<.0005	5
Step 2	Appl. qualification	1.34	<.0005	5
Step 3	Appl. qualification	1.36	.019	5
Model 3				
Step 1	Appl. qualification	1.33	<.0005	6
Step 1	Occupation type	1.51	<.0005	6
Step 2	Appl. qualification	1.33	<.0005	6
Step 2	Occupation type	1.51	<.0005	6
Step 3	Appl. qualification	1.28	.015	6
Step 3	Occupation type	1.68	<.0005	6
Model 4				
Step 1	Appl. qualification	1.30	.001	7
Step 1	Firm size = small	0.80	.028	7
Step 2	Appl. qualification	1.30	.001	7
Step 2	Firm size = small	0.80	.028	7
Model 5				
Step 1	Appl. qualification	1.34	<.0005	8
Step 2	Appl. qualification	1.34	<.0005	8
Step 3	Appl. qualification	1.36	.019	8
Model 6				
Step 1	Appl. qualification	1.33	<.0005	9
Step 1	Occupation type	1.51	<.0005	9
Step 2	Appl. qualification	1.33	<.0005	9
Step 2	Occupation type	1.51	<.0005	9
Step 3	Appl. qualification	1.28	.015	9
Step 3	Occupation type	1.68	<.0005	9

7. Overview of the Laboratory Experiments.

The results of the laboratory experiments are presented in a descriptive format as well as with tables. The results are divided into four sections, (a) population and descriptive findings, (b) investigation of assumptions as relates to inferential analysis, (c) presentation of findings for the multivariate analysis of variance (MANCOVA) model and the hierarchical multiple linear regression model, and (d) tests of hypotheses, SPSS v22.0 was used for all descriptive and inferential analyses. The MANCOVA omnibus model was tested at the 95% level of significance ($p < .05$), with between-subjects effects in the model for the dependent variables tested at a Bonferroni adjusted significance level of $p < .05/4 = .0125$. The hierarchical multiple linear regression model was tested at the 95% level of significance.

The purpose of the laboratory experiments was to determine whether participants who are conditioned to hire qualified applicants express lower interest toward people with disabilities than their counterparts, among two high-skill occupations. The study investigated whether participant interest toward applicants is influenced by the presence of disability, particularly when a distraction is introduced in the experimental group. In accordance with Dual Processing, the distraction was intended to provoke instinctive decision making by lab participants when they determined job-fitness toward applicants with disabilities.

A single MANCOVA model addressed the null hypotheses of Research Questions 1, 5, 6, and 8, and a hierarchical multiple linear regression (HMR) was used to address the null hypothesis for Research Question 7 as follows:

Research Hypothesis 1. People with disabilities are less likely than those without disabilities to receive expressions of employer interest in response to job applications.

Research hypothesis 1 for the laboratory experiments is the same as the research hypothesis for the field experiments. However, it is addressed in the laboratory experiments via MANCOVA comparative analysis of mean differences between the two disability groups (SCI vs. no disability) on the dependent variable of P-J Fit score according to the following statistical hypotheses:

Null Hypothesis 1(Lab). There is not a statistically significant mean difference between the two disability groups on the P-J Fit scores, or the SCI group will have a significantly greater mean P-J Fit score than the no disability group.

Alternative Hypothesis 1(Lab). The SCI group will have a significantly lower mean P-J Fit score than the no disability group.

Research Hypothesis 5. Employers are less likely to express interest toward applicants with disabilities when they are occupied by distractors than when they are not occupied by distractors.

Research hypothesis 5 was investigated by comparing mean differences on the two levels of the independent variable representing distraction (distracted vs. non-distracted) as relates to interaction terms or main effects, on the dependent variable of P-J Fit in the MANCOVA model.

Null Hypothesis 5. There is not a statistically significant mean difference between the two distraction groups on the P-J Fit scores, or the distracted group will have a significantly greater mean P-J Fit score than the non-distracted group.

Alternative Hypothesis 5. The distracted group will have a significantly lower mean P-J Fit score than the non-distracted group.

Research Hypothesis 6. There will be a greater gap in employer interest between applicants with and without disabilities in accounting than in software development.

Research hypothesis 6 was investigated by investigating the Disability Group X Occupation interaction term as relates to the P-J Fit dependent variable in the MANCOVA model. The following statistical hypotheses will be tested:

Null Hypothesis 6. There is not a statistically significant Disability Group X Occupation interaction term as relates to the P-J Fit dependent variable.

Alternative Hypothesis 6. There is a statistically significant Disability Group X Occupation interaction term as relates to the P-J Fit dependent variable.

Research Hypothesis 7. SDO will moderate the effects of disability on perceived job-fit, such that high-SDO will result in decreased perceptions of job-fit for applicants with disabilities, but there will be no relationship between SDO and perceived job-fit for applicants without disabilities.

Research hypothesis 7 was addressed in the laboratory experiments via a hierarchical multiple linear regression model with the dependent variable of P-J Fit regressed on individual predictors of SDO and disability type in Step 1, and the interaction of SDO X Disability type in Step 2. Of interest was the interaction effect in Step two. The hierarchical multiple linear regression tested following statistical hypotheses:

Null Hypothesis 7. There is not a statistically significant interaction effect of SDO X Disability type on P-J Fit in Step 2, above the main effects of Step 1.

Alternative Hypothesis 7. There is a statistically significant interaction effect of SDO X Disability type on P-J Fit in Step 2, above the main effects of Step 1.

Research Hypothesis 8. Employers are less likely to perceive high-warmth and high-competence in applicants with disabilities than applicants without disabilities.

Research hypothesis 8 was addressed in the laboratory experiments via MANCOVA comparative analysis of mean differences between the two disability groups (SCI vs. no disability) on the dependent variables of SCM-Warmth score and SCM-Competence score according to the following statistical hypotheses:

Null Hypothesis 8a. There is not a statistically significant mean difference between the two disability groups on the SCM-Warmth scores, or the SCI group will have a significantly greater mean SCM-Warmth score than the no disability group.

Alternative Hypothesis 8a. The SCI group will have a significantly lower mean SCM-Warmth score than the no disability group.

Null Hypothesis 8b. There is not a statistically significant mean difference between the two disability groups on the SCM-Competence scores, or the SCI group will have a significantly greater mean SCM- Competence score than the no disability group.

Alternative Hypothesis 8b. The SCI group will have a significantly lower mean SCM-Competence score than the no disability group.

8. Population and Descriptive Findings for the Laboratory Experiments.

A total of $N = 241$ business students participated in both laboratory experiments. $N = 120$ participants evaluated software developer candidates and $N = 121$ participants evaluated accountant candidates. A single MANCOVA model was developed for the

comparative tests of research hypotheses 1, 5, 6, and 8 to preserve study power and to decrease Type I error from repeated testing. This was possible because the two laboratory experiments were identical in scope except for the open position for which the hypothetical candidate was evaluated (i.e., software developer vs. accountant) by the lab participants. Research Hypothesis 7 was addressed with a hierarchical multiple linear regression in order to look only at the effects of SDO and disability group on the P-J Fit dependent variable. Table 1 presents a breakdown of the hypothetical candidate specifications according to the occupation "applied" for.

Table 11

Frequency Counts and Percentages of Independent Group Membership of Hypothetical Job Candidates, According to Occupation Type (N = 241)

	Occupation Type			
	Software Developer		Accountant	
Group	Frequency	%	Frequency	%
Disability group				
SCI	60	50.0	60	49.6
No disability	60	50.0	61	50.4
Distraction condition				
Distracted	60	50.0	61	50.4
Non-distracted	60	50.0	60	49.6

Note. % = Percentage of hypothetical candidates in the occupation type.

9. Descriptive Information & Reliability for the Laboratory Experiment Measures.

The questionnaire (see Appendix L) included three measurement instruments:

I. Person-Job Fit, using the Higgins and Judge (2004) scale.

II. Stereotype Content Model's, using the Fiske, Cuddy, Glick, and Xu (2002) warmth and competence scales.

III. Social Dominance Orientation, using the Pratto, Sidanius, Stallworth, and Malle (1994) scale.

I. Person-Job Fit (P-J Fit). The dependent variable of P-J Fit was using the Higgins and Judge (2004) scale that determines the congruence between job demands and applicant abilities. A total of five Likert-scaled items and two open-ended questions were included in the measure. The instructions to participants in completing the five Likert-scaled items read as follows, "Circle the response that best characterizes how you feel about the statements below, from: 1 = Entirely disagree, to 7 = Entirely agree." The five Likert-scaled items were summed for each participant to derive the P-J Fit score. The possible range of P-J Fit scores was 5 to 35, and higher P-J Fit scores were indicative of better perceived fit by the participant, of the applicant. The qualitative responses were not included in the study plan and will not be reported in the body of this document. However, the SPSS output of the qualitative responses to the open-ended questions is presented in the Appendix (L), and are presented according to occupation and disability type.

II, Stereotype Content Mode (SCM). Stereotype content of the participants was assessed using the Fiske, Cuddy, Glick, and Xu (2002) scales that determines stereotypical traits on factors of competence (SCM-Competence) and warmth (SCM-Warmth). The items used from both scales are provided in the Appendix (L). Each of the two SCM factors included six characteristics for which the participants were asked to

rate the applicant. The instructions to participants read as follows, "Based on the cover letter, indicate the extent to which the following characteristics describe the applicant from: 1 = Not at all, to 7 = Extremely." Scores of the six items for each factor were summed to obtain scores for each participant. Possible scores for both the SCM-Competence and SCM-Warmth factors ranged from 6 to 42, with higher scores indicative of greater perceived competence or warmth respectively.

III. Social Dominance Orientation (SDO). This study evaluated SDO by using the Pratto and colleagues (1994) scale that determines prejudice and discrimination against outgroups (i.e., people with disabilities). The 16 items used in this scale are provided in the Appendix (L). Participants were asked to self-report on the 16 statements with instructions to participants as follows, "Which of the following statements do you have a positive or negative feeling towards? Circle the response that best characterizes how you feel about the statements below, from: 1 = Very negative, to 7 = Very positive." The first set of eight items and second set of eight items were inverse in meaning to each other, and therefore items 9 – 16 were reverse coded before being summed with the remaining items into the factor of SDO. The range of possible scores was 16 – 112 and higher scores were indicative of greater prejudice and discrimination against outgroups.

Cronbach's coefficient alpha for internal consistency reliability for the four derived factors, which were used as dependent variables in the MANCOVA, was checked in SPSS. A Cronbach's alpha value of .70 or greater indicates adequate reliability of an instrument with the data collected (Field, 2005). All four factors returned Cronbach's alpha values well above the .70 cutoff for reliability.

Table 12 presents the Cronbach's alpha coefficients as well as the measures of central tendency and variability for the four factors used as dependent variables in this study, for all participants (N = 241). Table 13 presents the measures of central tendency and variability according to the levels of disability group and distraction condition for the accountant laboratory experiment (N = 121). Table 14 presents the measures of central tendency and variability according to levels of disability group and distraction condition for the software developer laboratory experiment (N = 120).

Table 12

Measures of Central Tendency and Cronbach's Alpha Coefficients for the Key Measures (N = 241)

Dependent Variable	*M*	*SD*	*Mdn*	Sample Range	*A*
P-J Fit	28.50	6.90	30.00	5 - 35	.944
SCM-Competence	24.25	3.39	24.00	12 - 30	.832
SCM-Warmth	22.95	4.03	23.00	9 - 30	.879
SDO	34.37	13.47	33.00	16 - 88	.895

Note. *M* = Mean; *SD* = Standard Deviation; *Mdn* = Median; α = Cronbach's alpha.

Table 13

Measures of Central Tendency for the Key Measures, by Independent Group Classifications, for the Accounting Laboratory Experiment (N = 121)

Dependent/Independent/Level	*M*	*SD*	*Mdn*	Sample Range
P-J Fit				
Disability group				
SCI	29.12	6.01	31.00	6 – 35
No disability	27.41	6.44	28.00	5 – 35
Distraction condition				
Distracted	28.79	5.56	30.00	6 - 35
Non-distracted	27.72	6.91	29.00	5 - 35
SCM-Competence				
Disability group				
SCI	23.85	2.83	24.00	16 - 30
No disability	22.54	3.81	23.00	12 - 30
Distraction condition				
Distracted	22.67	3.51	23.00	12 - 30
Non-distracted	23.72	3.25	24.00	15 - 30
SCM-Warmth				
Disability group				
SCI	24.47	3.19	24.00	18 - 30
No disability	21.64	4.73	22.00	9 - 28
Distraction condition				
Distracted	22.38	4.31	22.00	9 - 30
Non-distracted	23.72	4.15	24.00	9 - 30
SDO				
Disability group				
SCI	32.83	12.26	29.50	16 - 72
No disability	34.57	12.69	35.00	16 - 64
Distraction condition				
Distracted	32.41	11.77	30.00	16 - 66
Non-distracted	35.03	34.30	34.00	18 - 72

Note. *M* = Mean; *SD* = Standard Deviation; *Mdn* = Median.

Table 14

Measures of Central Tendency for the Key Measures, by Independent Group Classifications, for the Software Developer Laboratory Experiment (N = 120)

Dependent/Independent/Level	*M*	*SD*	*Mdn*	Sample Range
P-J Fit				
Disability group				
SCI	30.25	6.42	32.50	7 - 35
No disability	27.25	8.26	29.50	5 - 35
Distraction condition				
Distracted	29.22	7.25	31.00	5 - 35
Non-distracted	28.28	7.81	30.00	5 - 35
SCM-Competence				
Disability group				
SCI	25.62	2.81	26.00	19 - 30
No disability	25.03	3.24	24.50	16 - 30
Distraction condition				
Distracted	25.28	3.10	26.00	16 - 30
Non-distracted	25.37	2.99	25.00	18 - 30
SCM-Warmth				
Disability group				
SCI	23.67	3.90	24.00	13 - 30
No disability	22.07	3.55	22.00	11 - 30
Distraction condition				
Distracted	22.88	4.00	24.00	11 - 30
Non-distracted	22.85	3.61	23.00	13 - 30
SDO				
Disability group				
SCI	31.13	12.48	28.00	16 - 62
No disability	38.93	15.30	38.00	16 - 88
Distraction condition				
Distracted	33.20	13.38	29.00	16 - 74
Non-distracted	36.87	15.32	36.00	16 - 88

Note. *M* = Mean; *SD* = Standard Deviation; *Mdn* = Median.

10. Assumptions for the Laboratory Experiments Analyses.

Multivariate analysis of variance (MANCOVA) was used to test null hypotheses 1, 5, 6, 8a, and 8b. A hierarchical multiple linear regression was used to test null hypothesis 7. The dataset (N = 241) was investigated for the MANCOVA and/or multiple regression assumptions of absence of missing data, adequate sample size, absence of univariate and multivariate outliers, univariate and multivariate normality, homogeneity of variance-covariance matrices, linearity and homoscedasticity, and absence of multicollinearity. Pearson's product-moment correlations also require linearity.

A total of N = 241 records were collected for the study. The MANCOVA model included the variable of gender as an independent control variable and age as a continuous covariate. One record was missing values for gender, and four records were missing age. Thus, only N = 236 records were usable in the MANCOVA model. However, all N = 241 records could be used in the hierarchical multiple regression analysis.

A statistical rule of thumb is to assume the missing-ness of data is "missing completely at random" (MCAR) if less than 5% of the data is missing for a variable (McKnight, 2007). The amount of data missing on both the gender and age variables was approximately 2%. Thus, the missing-ness was assumed to be MCAR and that it would not affect the analysis outcomes. Pairwise deletion of cases is an option provided by SPSS for handling missing data. Pairwise deletion is a technique that excludes cases only when they are missing data for a particular analysis, but includes the case for all analyses for which they have the needed information (Pallant, 2013). Therefore, to help retain a

data record that was as complete as possible and to retain as much power as possible for the study, the records with the missing information on the independent variables were excluded only for the hypothesis tests in which they were involved (MANCOVA), but the records were retained for the hypothesis tests in which they had the available information (i.e., hierarchical multiple linear regression).

A requirement for adequate sample size for a MANCOVA is that there should be more research units in the smallest group than there are dependent variables (Tabachnick and Fidell, 2013). This was the case for this study. There was a total of three dependent variables included in the MANCOVA and all the cell sizes in the MANCOVA analyses included more than four respondents. The a priori power analysis indicated that N = 55 records were needed for the hierarchical multiple linear regression model. Therefore, the assumption of adequate sample size was not violated.

Outliers in a dataset have the potential to distort the results of an inferential analysis. A check of boxplots for the three dependent variables was performed to visually inspect for univariate outliers. The boxplots indicated some outlying values, especially for the lower ranges of the P-J Fit variable. Each outlier was further examined, and it was determined that the outlying values were within the acceptable ranges of each variable. Additionally, none of the outliers were pulling the means far from the medians of the constructs (see Table 12), it was determined that the outliers were not adversely affecting the dataset (McKnight, McKnight, Souraya, Figueredo, 2007). Tabachnick and Fidell (2013) note that MANCOVA is robust to deviations from normality if there are more than 20 records in each cell (p: 253). Regression is robust to deviations from normality if other assumptions, such as equal residual variances, are met. Since the

number of records in each cell of the MANCOVA table were well above 20, and the outliers were not pulling the means far from the medians on the four factors, the data was not transformed or adjusted prior to analysis. The assumption of normality was met.

Multivariate normality for the scores of the three dependent variables was investigated with SPSS using Mahalanobis distance criteria on the dataset which included $N = 241$ cases. Mahalanobis distance is the distance of a particular case from the centroid of the remaining cases, where the centroid is the point created by the means of all the variables (Tabachnick and Fidell, 2007). The Mahalanobis Distance Test for multivariate normality indicated that six of the cases had a z-score of greater than 18.47, the critical value for concluding a violation of multivariate normality (Pallant, 2013). However, the multivariate outliers, ranging in value from 18.51 to 21.35 were not much larger than the 18.47 cut-off. Pallant (2013, p: 296) states that MANCOVA analysis can tolerate a few outliers especially if the scores are not too extreme and the data file is a "reasonable size". Therefore, the six cases with multivariate outliers were retained for analysis.

Investigation of homogeneity of variance-covariance matrices was investigated with Box's M test of equality of covariance matrices, a test included in the SPSS output of the MANCOVA analyses. A p-value of $p < .01$ on Box's M suggests a violation of the assumption. Box's M for this study returned a p-value of $p < .0005$. Tabachnick and Fidell (2013, p: 254) state that Box's M is very conservative and will return significant findings on larger samples and cell sizes that are equal, both of which are aspects of the data used in this study. Tabachnick and Fidell (2013) suggest that the test statistic of Pillai's trace is more robust than Wilks' Lambda when violations of assumptions are

noted (p: 271). Thus, Pillai's trace statistics were used to interpret the omnibus tests of the MANCOVA analyses for this study.

Assumptions of linearity between study variables and homoscedasticity were checked with scatterplots of the data and regression residuals plots. The assumptions of linearity and homoscedasticity were met. Multicollinearity diagnostics for the MANCOVA were performed using SPSS via correlational analysis. Multicollinearity may be assumed if there is a high correlation ($r > .90$) between the dependent variables (Pallant, 2013). None of the dependent variables were highly correlated at the $r > .90$ level, indicating no multicollinearity. The Pearson's product-moment correlation coefficients for the variables included in analysis are presented in Table 15.

Table 15

Pearson's Product-Moment Correlation Coefficients for Variables Used for Inferential Analysis (N = 241)

Variable	1	2	3	4	5
1. P-J Fit	---				
2. SCM-Competence	.241**	---			
3. SCM-Warmth	.130*	.448**	---		
5. Disability type = SCI	.171**	.141*	.275**	---	
6. Distraction condition = distracted	.073	-.085	-.081	-.004	---
7. Occupation = software developer	.036	.315**	-.022	.004	-.004

* $p < .05$
** $p < .01$

11. MANCOVA Model and Findings for the Laboratory Experiments.

A single MANCOVA model was developed for the comparative tests of research hypotheses 1, 5, 6, and 8 to preserve study power and to decrease Type I error from repeated testing. This was possible because the two laboratory experiments were identical in scope apart from the open position for which the hypothetical candidate was evaluated (software developer vs. accountant) by the lab participants.

Three dependent variables were included in the MANCOVA, (a) P-J Fit, (b) SCM-Competence, (c) SCM-Warmth. SDO was included as a moderator. Three independent variables included in the model were (a) occupation with two levels of accountant (n = 121) vs. software developer (n = 120), (b) disability group with two levels of SCI (n = 120) vs. no disability (n = 121), and (c) distraction condition with two levels of distracted (n = 121) vs. non-distracted (n = 120). Participant gender was included in the model as an independent control with two groups of male (n = 129) and female (n = 111). Participant age in years (n = 237 records available for age) was also included in the MANCOVA as a continuous covariate. A total of N = 236 records were included in the MANCOVA model. Results of the omnibus tests indicated no significant interaction effects between any of the three independent variable groups. However, significant main effects were found for the variables of (a) disability group and (b) gender.

Disability group. The main effect of disability group was statistically significant F (4, 216) = 6.96, $p < .0005$; Pillai's Trace = 0.11; $\eta_p^2 = 0.11$, indicating a significant difference between the two disability types in terms of at least one of the three dependent variables. According to generally accepted criteria (Cohen, 1988) the strength of effect

sizes for η_p^2 can be classified as small (.01), medium (.06) and large (.14). The effect size for the significant effect of disability group indicated that approximately 11% of the variance in the three dependent variables as a whole was explained by the disability group variable.

Between-subjects effects for the disability group levels of SCI vs. no disability were examined with a Bonferroni adjusted alpha level to further investigate the significant results found for disability group as it relates to each of the four individual dependent variables. The Bonferroni adjustment is computed by dividing the study alpha level by the number of dependent variables tested in the analysis. Thus, significant between-subjects effects were noted at the p = .05/4 = .0125. The findings of the between-subjects effects of disability group for each of the three dependent variables are presented in Table 16. Significance between SCI and no disability was found for the dependent variables of (a) P-J Fit, F (1, 219) = 7.28, p = .008; η_p^2 = 0.03, (b) SCM-Warmth, F (1, 219) = 19.39, p < .0005; η_p^2 = 0.08. The estimated marginal means, standard errors and 95% confidence intervals for each of the disability groups on the three dependent variables are presented in Table 17.

Bonferroni adjusted post-hoc tests for the variable of P-J Fit indicated that the mean score was significantly higher for the disability group of SCI (M = 29.77, SEM = 0.65) than for the group of no disability (M = 27.26, SEM = 0.66; p = .008).

Bonferroni adjusted post-hoc tests for the variable of SCM-Warmth indicated that the mean score was significantly higher for the disability group of SCI (M = 24.04, SEM = 0.36) than for the group of no disability (M = 21.75, SEM = 0.37; p < .0005).

Table 16

Results of the Between-Subjects Effects of the MANCOVA Analysis Performed to Investigate Effects for the Independent Variable of Disability Group as Relates to the Three Dependent Variables of Study (N = 236)

Dependent Variable	Type III Sum of Squares	*df*	*F*	*p*-value	Partial Eta Squared
P-J Fit	344.32	1	7.28	.008	.032
SCM-Competence	56.44	1	5.68	.018	.025
SCM-Warmth	288.13	1	19.39	<.0005	.081

Note. *df* = Degrees of Freedom; *F* = F-Statistic.

Table 17

Estimated Marginal Means and Standard Errors for the Three Dependent Variables Tested in MANCOVA, According to Level of Disability Group (N = 236)

			95% Confidence Interval for the Mean	
Dependent Variable/Group	*M*	*SEM*	Lower	Upper
P-J Fit				
SCI	29.77	0.65	28.50	31.04
No disability	27.26	0.66	25.97	28.56
SCM-Competence				
SCI	24.79	0.30	23.18	25.37
No disability	23.77	0.30	24.21	24.37
SCM-Warmth				
SCI	24.04	0.36	23.33	24.76
No disability	21.75	0.37	21.03	22.48

Note. *M* = Mean; *SEM* = Standard Error of the Mean.

Occupation. The main effect of occupation was statistically significant F (4, 216) = 9.96, $p < .0005$; Pillai's Trace = 0.16; $\eta_p^2 = 0.16$, indicating a significant difference between the two occupation types in terms of at least one of the three dependent variables. The effect size for the significant effect of occupation indicated that approximately 16% of the variance in the three dependent variables as a whole was explained by the occupation variable.

Between-subjects effects for the occupation levels of accountant vs. software developer were examined with a Bonferroni adjusted alpha level ($p < .0125$) to further investigate the significant results found for occupation as it relates to each of the four individual dependent variables. The findings of the between-subjects effects of occupation group for each of the three dependent variables are presented in Table 18. Significance between the occupation groups of accountant and software developer was found only for the dependent variable of SCM-Competence, F (1, 219) = 27.21, $p < .0005$; $\eta_p^2 = 0.11$. The estimated marginal means, standard errors and 95% confidence intervals for each of the disability groups on the three dependent variables are presented in Table 19.

Bonferroni adjusted post-hoc tests for the variable of SCM-Competence indicated that the mean score was significantly higher for the software developer group (M = 25.42, SEM = 0.30) than for the accountant group (M = 23.15, SEM = 0.31; $p < .0005$).

Table 18

Results of the Between-Subjects Effects of the MANCOVA Analysis Performed to Investigate Effects for the Independent Variable of Occupation Group as Relates to the Three Dependent Variables of Study (N = 236)

Dependent Variable	Type III Sum of Squares	*df*	*F*	*p*-value	Partial Eta Squared
P-J Fit	34.75	1	0.74	.392	.001
SCM-Competence	270.24	1	27.21	<.0005	.111
SCM-Warmth	1.67	1	0.11	.738	.001

Note. *df* = Degrees of Freedom; *F* = F-Statistic.

Table 19

Estimated Marginal Means and Standard Errors for the Three Dependent Variables Tested in MANCOVA, According to Level of Occupation (N = 236)

			95% Confidence Interval for the Mean	
Dependent Variable/Group	*M*	*SEM*	Lower	Upper
P-J Fit				
Accountant	28.11	0.67	26.79	29.43
Software developer	28.92	0.65	27.65	30.20
SCM-Competence				
Accountant	23.15	0.31	22.54	23.75
Software developer	25.42	0.30	24.83	26.00
SCM-Warmth				
Accountant	22.99	0.38	22.25	23.73
Software developer	22.81	0.36	22.09	23.52

Note. *M* = Mean; *SEM* = Standard Error of the Mean.

12. Hierarchical Multiple Linear Regression Model and Findings for the Laboratory Experiments.

The null hypothesis of Research Question 7 was tested with one hierarchical multiple linear regression model. The dependent variable was P-J Fit. The regression had 2 steps or blocks. All $N = 241$ records were included in the model.

The first step included the two independent variables of: (a) disability group (coded as SCI = 1 and no disability = 0) and (b) SDO. The second step included the interaction term for SDO X Disability Group.

The model was specified with a reference of an applicant who did not have a disability. Table 22 presents the findings of the hierarchical multiple linear regression analysis.

The Step 1 model had an R value for regression that was significantly different from zero, F (2, 238) = 5.80, $p = .003$, with R^2 of .046 (adjusted $R^2 = .038$). Both of the independent predictors were significant for the Step 1 model. SDO was a significant predictor of P-J Fit [$B = -0.07$; t (228) = -2.08, $p = .039$]. The magnitude and direction of the SDO coefficient indicated that each one point increase in SDO was associated with a 0.07-point decrease in P-J Fit. Disability group was also a significant predictor of P-J Fit [$B = 2.03$; t (228) = 2.29, $p = .023$]. The magnitude and direction of the coefficient for disability group indicated that applicants with disabilities had about a 2-point increase in P-J Fit when compared to applicants without disabilities. A check of the squared semi-partial correlations for the Step 1 model indicated that 2% of the variability in the dependent variable of P-J Fit was uniquely accounted for by SDO, and 2% of the variance was uniquely accounted for by disability group.

Step 2 of the hierarchical regression included the variables from Step 1 and the SDO X Disability Group interaction term. The Step 2 model was not a significant improvement above the Step 1 model [F (1, 237) = 3.91, p = .009; *F*-change (1, 237) = 0.17, p = .677], with R^2 of .047 (adjusted R^2 = .035), for a total R^2 change of .001. None of the three variables were significant for the second step.

Table 22

Hierarchical Multiple Linear Regression Analysis of P-J Fit Regressed on SDO and Disability Group (Step 1), and the Interaction Term (Step 2); (N = 241)

Step/Variable	*B*	*SE B*	β	*t*	*p*	95% CI for *B* Lower	Upper
Step 1							
SDO	-0.07	0.03	-0.13	-2.08	.039	-0.13	-0.01
Disability group	2.03	0.89	0.15	2.29	.023	0.28	3.77
(Constant)	29.85	1.36	---	---	---	---	---
Model Summary							
F = 5.80							
R^2 = .046							
Adj. R^2 = .038							
Model Sig. = .003							
Step 2							
SDO	-0.06	0.04	-0.11	-1.30	.197	-0.14	0.03
Disability group	2.97	2.44	0.22	1.22	.224	-1.83	7.77
SDO X Disability Group	-0.03	0.07	-0.07	-0.42	.677	-0.16	0.10
(Constant)	29.41	1.72	---	---	---	---	---
Model Summary							
F_{Change} = 0.17							
Sig. F_{Change} = .677							
R^2 = .047							
Adj. R^2 = .035							
Model Sig. .009							

Note. Reference group for Disability Group = No disability.

13. Tests of Hypotheses for the Laboratory Experiments.

The MANCOVA findings were used to test hypotheses 1, 5, 6, and 8. The hierarchical multiple linear regression findings were used to test hypothesis 7. The results of the hypothesis tests are presented according to each research question and associated statistical hypotheses.

Research Hypothesis 1. People with disabilities are less likely than those without disabilities to receive expressions of employer interest in response to job applications.

Research hypothesis 1 for the laboratory experiments is the same as the research hypothesis for the field experiments. However, it was addressed in the laboratory experiments via MANCOVA comparative analysis of mean differences between the two disability groups (SCI vs. no disability) on the dependent variable of P-J Fit score according to the following statistical hypotheses:

Null Hypothesis 1(Lab). There is not a statistically significant mean difference between the two disability groups on the P-J Fit scores, or the SCI group will have a significantly greater mean P-J Fit score than the no disability group.

Alternative Hypothesis 1(Lab). The SCI group will have a significantly lower mean P-J Fit score than the no disability group.

Conclusion as relates to Null Hypothesis 1(Lab). Applicants with SCI were scored significantly higher by the participants on the P-J Fit score (M = 29.77, SEM = 0.65) than those with no disability (M = 27.26, SEM = 0.66; p = .008). This finding is in opposition to the hypothesized relationship of people with SCI being less likely than those with no disability to receive employer interest. Therefore, do not reject Null

Hypothesis 1(Lab). There is not sufficient evidence that the SCI group has a significantly lower mean P-J Fit score than the no disability group.

Research Hypothesis 5. Employers are less likely to express interest toward applicants with disabilities when they are occupied by distractors than when they are not occupied by distractors.

Research hypothesis 5 was investigated by comparing mean differences on the two levels of the independent variable representing distraction (distracted vs. non-distracted) as relates to interaction terms or main effects, on the dependent variable of P-J Fit in the MANCOVA model.

Null Hypothesis 5. There is not a statistically significant mean difference between the two distraction groups on the P-J Fit scores, or the distracted group will have a significantly greater mean P-J Fit score than the non-distracted group.

Alternative Hypothesis 5. The distracted group will have a significantly lower mean P-J Fit score than the non-distracted group.

Conclusion as relates to Null Hypothesis 5. The independent variable of distraction condition was not statistically significant as an interaction or main effects for any of the three dependent variables. Therefore, do not reject Null Hypothesis 5. There is not sufficient evidence to indicate that the distracted group has a significantly lower mean P-J Fit score than the non-distracted group.

Research Hypothesis 6. There will be a greater gap in employer interest between applicants with and without disabilities in accounting than in software development.

Research hypothesis 6 was investigated by investigating the Disability Group X Occupation interaction term as relates to the P-J Fit dependent variable in the MANCOVA model. The following statistical hypotheses were tested:

Null Hypothesis 6. There is not a statistically significant Disability Group X Occupation interaction term as relates to the P-J Fit dependent variable.

Alternative Hypothesis 6. There is a statistically significant Disability Group X Occupation interaction term as relates to the P-J Fit dependent variable.

Conclusion as relates to Null Hypothesis 6. The independent variable interaction of Disability Group X Occupation was not statistically significant. Therefore, do not reject Null Hypothesis 6. There is not sufficient evidence to indicate that there is a statistically significant Disability Group X Occupation interaction term as relates to the P-J Fit dependent variable.

Research Hypothesis 7. SDO will moderate the effects of disability on perceived job-fit, such that high-SDO will result in decreased perceptions of job-fit for applicants with disabilities, but there will be no relationship between SDO and perceived job-fit for applicants without disabilities.

Research hypothesis 7 was addressed in the laboratory experiments via a hierarchical multiple linear regression model with the dependent variable of P-J Fit regressed on predictors of SDO and disability type in Step 1, and the interaction of SDO X Disability type in Step 2. Of interest was the interaction effect in Step two.

Null Hypothesis 7. There is not a statistically significant interaction effect of SDO X Disability type on P-J Fit in Step 2, above the main effects of Step 1.

Alternative Hypothesis 7. There is a statistically significant interaction effect of SDO X Disability type on P-J Fit in Step 2, above the main effects of Step 1.

Conclusion as relates to Null Hypothesis 7. The SDO X Disability Group interaction term in the Step 2 model of the regression was not statistically significant. Therefore, do not reject Null Hypothesis 7. There is not sufficient evidence that there is a statistically significant interaction effect of SDO X Disability type on P-J Fit in Step 2, above the main effects of Step 1.

Research Hypothesis 8. Employers are less likely to perceive high-warmth and high-competence in applicants with disabilities than applicants without disabilities.

Research hypothesis 8 was addressed in the laboratory experiments via MANCOVA comparative analysis of mean differences between the two disability groups (SCI vs. no disability) on the dependent variables of SCM-Warmth and SCM-Competence score according to the following statistical hypotheses:

Null Hypothesis 8a. There is not a statistically significant mean difference between the two disability groups on the SCM-Warmth scores, or the SCI group will have a significantly greater mean SCM-Warmth score than the no disability group.

Alternative Hypothesis 8a. The SCI group will have a significantly lower mean SCM-Warmth score than the no disability group.

Conclusion as relates to Null Hypothesis 8a. Applicants with SCI were scored significantly higher by the participants on the SCM-Warmth score (M = 24.04, SEM = 0.36) than those with no disability (M = 21.75, SEM = 0.37; $p < .0005$). This finding is in opposition to the hypothesized relationship of employers being less likely to perceive high-warmth toward applicants with disabilities than applicants without disabilities.

Therefore, do not reject Null Hypothesis 8a. There is not sufficient evidence that the SCI group has a significantly lower mean SCM-Warmth score than the no disability group.

Null Hypothesis 8b. There is not a statistically significant mean difference between the two disability groups on the SCM-Competence scores, or the SCI group will have a significantly greater mean SCM-Competence score than the no disability group.

Alternative Hypothesis 8b. The SCI group will have a significantly lower mean SCM-Competence score than the no disability group.

Conclusion as relates to Null Hypothesis 8b. Significance between SCI and no disability was not found for the dependent variable of SCM-Competence, F (1, 219) = 5.68, p = .018; η_p^2 = 0.02. Therefore, do not reject Null Hypothesis 8b. There is not sufficient evidence that the SCI group has a significantly lower mean SCM-Competence score than the no disability group.

14. Summary of the Laboratory Experiments.

Overall, there were no significant interaction effects among any of the three independent variable groups. However, significant main effects were found only for the independent variables of disability group (SCI vs. no disability), occupation (accounting vs. software development) and gender. Significance between SCI and no disability was found for the dependent variables of P-J Fit, p = .008; SCM-Warmth, p < .0005; and SDO, p = .008. Bonferroni adjusted post-hoc tests for the variable of P-J Fit indicated that the mean score was significantly higher for the disability group of SCI (M = 29.77) than for the group of no disability (M = 27.26); the variable of SCM-Warmth indicated that the mean score was significantly higher for the disability group of SCI (M = 24.04)

than for the group of no disability (M = 21.75). Significance between the occupation groups of accountant and software developer was found only for the dependent variable of SCM-Competence, $p < .0005$. Bonferroni adjusted post-hoc tests for the variable of SCM-Competence indicated that the mean score was significantly higher for the software developer group (M = 25.42) than for the accountant group (M = 23.15). Significance between gender groups of female and male was found only for the dependent variable of SDO, $p = .005$. Bonferroni adjusted post-hoc tests for the variable of SDO indicated that the mean score was significantly higher for females (M = 37.91) than for males (M = 31.54).

Both of the independent predictors were significant for Step 1 of the hierarchical linear regression model. SDO was a significant predictor of P-J Fit [B = -0.07; t (228) = -2.08, $p = .039$]. The magnitude and direction of the SDO coefficient indicated that each one point increase in SDO was associated with a 0.07-point decrease in P-J Fit. Disability group was also a significant predictor of P-J Fit [B = 2.03; t (228) = 2.29, p = .023]. The magnitude and direction of the coefficient for disability group indicated that applicants with disabilities had about a 2-point increase in P-J Fit when compared to applicants without disabilities. The hierarchical multiple linear regression model was not significant on Step 2 and therefore did not support Research Question 7.

None of the five research hypotheses were supported.

15. Ad Hoc Analyses of the Laboratory Experiments.

Moderated Mediation Analysis. A moderated mediation, also called a conditional process model, was conducted as an ad hoc analysis for the laboratory

experiments. The diagram of the moderated mediation model is presented in Figure 1. The model was tested as outlined by Hayes (2013) using the PROCESS macro in SPSS. Specifically, the model was tested to see if participants' Social Dominance Orientation (SDO) moderated the relationships among the independent variable of disability status and perceived competence of the applicant (SCM-Competence). The disability status variable was effect coded as -1 = no disability and 1 = disability prior to analysis. The moderator of SDO and the mediator of SCM-Competence were mean centered prior to analysis. Three levels of the moderator were (a) low SDO (-1 standard deviation from the mean of SDO, which was mean centered to zero), (b) average SDO (the mean of SDO, mean centered to zero), and (c) high SDO (+1 standard deviation from the mean of SDO, which was mean centered to zero). Disability status significantly predicted P-J Fit when controlling for the SCM-Competence (path c'), B = 0.96, *SE*B = 0.46; t (238) = 2.07, $p = 0.40$. A mediating effect by SCM-competence was indicated in the model, in that the mediator of SCM-Competence was significant for P-J Fit while controlling for disability status (path b), B = 0.45, *SE*B = 0.14; t (238) = 3.21, $p = .002$. Since both disability status and SCM-Competence were both significant for P-J Fit, the mediation effect of SCM-competence on the relationship between disability status and P-J Fit was partial, not complete.

Although there was a mediation effect, SDO did not significantly moderate the relationship between disability status and SCM-Competence (path a), B = 0.40, *SE*B = 0.22; t (237) = 1.82, $p = .070$. Due to the non-significance of the moderation effect, further investigation into the levels of the moderation effect (low SDO vs. high SDO) was not warranted. The Index of Moderated Mediation, a test of equality of the

conditional indirect effect for the levels of the moderator, was not significant (Index = -0.005, SEB = 0.08, 95% Bootstrap CI [-0.03, 0.01]. The non-significance of the index suggests that moderated mediation was not present in the model.

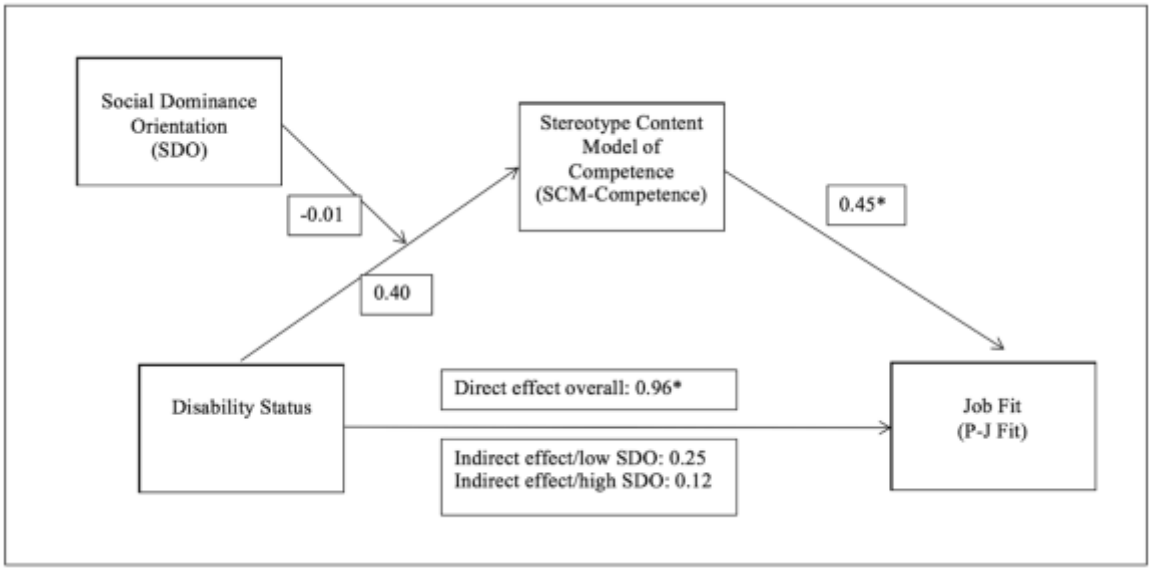

Figure 1. Moderated mediation model of the moderator of social dominance orientation (SDO) on the relationships among the independent variable of disability status and perceived competence of the applicant (SCM-Competence), as relates to the dependent variable of job fit (P-J Fit). Moderated mediation was not found for the model.

DISCUSSION

What does the term "disability" mean to able-bodied society, and how can we understand the complex relationship between disability and employment? Prior studies have found that employers are often more unwilling to hire people with disabilities than people without disabilities. However, the field and laboratory evidence here reached opposite conclusions.

Following prior field experiments on labor market discrimination, Research Design (A) submitted applications in response to 12,032 advertised software developer and data-entry clerk positions. One-fourth of the cover letters disclosed that the applicant has a spinal cord injury, one-fourth disclosed post-traumatic stress disorder (PTSD), one-fourth disclosed a hearing impairment, and one-fourth did not mention disability. To test the effect of qualifications on employer responses to applicants with disabilities, the résumés and cover letters were designed to demonstrate that applicants were well-qualified novices and experts. Overall, the evidence did not show gaps by disability status in employer interest. It sheds light on the findings of Ameri et al., (forthcoming) that implemented a similar field experiment in accounting by demonstrating that employer discrimination may not be generalizable to other jobs and disabilities.

Furthermore, because the correspondence approach could not directly test social cognition theory using "paper persons," complementary lab experiments in Research Design (B) simulated hiring decisions in a controlled setting of 241 participants. Overall, evidence showed that a strong signaling system (i.e., a policy regarding inclusion) may ease aversion toward applicants with disabilities, and improve perceptions of job-fitness. The results are consistent with Dual Processing theory in which Priming and Stereotype

Suppression can facilitate objective reasoning by undermining perceptions of Role Congruity (i.e., social stratification).

This segment addresses the implications and limitations of Research Designs (A) and (B). Concluding remarks are presented thereafter.

Implications of the Field Experiments. Regarding field experiments (1) and (2), the evidence suggests that applicants with disabilities (specifically, applicants with spinal cord injury, post-traumatic stress disorder, and hearing impairment) may be as likely to find work in some high- and low-skill occupations as are able-bodied applicants. Whereas workers with disabilities traditionally face mistreatment, and common employer responses often lead to their social exclusion (Schur et al., 2013), the evidence here suggests that disability is not necessarily critical in determining job-fitness. That is, disability may be perceived as extraneous by employers, and applicants' knowledge, skills, abilities, and other qualities that demonstrate job proficiency apparently matter most (Schwochau and Blanck, 2000).

Also, the field results contrasted with Ameri et al. (forthcoming) that used a similar approach to identify gaps in hiring qualified applicants with disabilities. In that study, applicants with disabilities who applied for accounting jobs received fewer expressions of employer interest, but that result was absent here. Perhaps the null effect is best explained by the types of jobs being studied. Accounting is a high-skill occupation where employers may be reluctant to hire people with disabilities because of stereotyping, the importance that is placed on appearance and client interaction, its rigid, top-down structuring, and the time commitment that is required of accountants generally (Author, 2007b; Duff and Ferguson, 2011). On the other side of the spectrum, software

development is a culturally autonomous high-skill occupation, with flexible work arrangements that are especially convenient for many people with disabilities (Ali et al., 2011). For example, work activities that are characteristic of software development include digital communication (e.g., e-mail) with supervisors and peers.[21] In fact, O*Net describes that in software development, digital communication is performed almost regularly, whereas physical contact with others is rather light (BLS Occupational Outlook Handbook, 2017).

The flexibility that is offered to software developers can help people with disabilities manage their limitations without inhibiting work productivity (Standifer, 2012). For example, software developers can choose from a suite of technologies that are most appropriate for their functionality at work (Samant Raja, 2016). In fact, online texting platforms have been adopted by engineers with hearing impairments to facilitate communication (Samant Raja, 2016; Power and Power, 2004; Pilling and Barrett, 2007; Andes and Castro, 2010). Additional norms include the convenience of working remotely for developers with mobility impairments (Sandler and Blanck, 2005; Mealin and Murphy-Hill, 2012). Therefore, software development appears to be a highly suitable career for many people with disabilities, and the field evidence suggests that technology may be a plausible explanation for why this is so.

Regarding field experiments (1) and (2), the evidence suggests a leveling effect that technology has on job opportunities for people with disabilities (Krueger and Kruse, 1995). Technology may enable people with disabilities to participate on an equal basis in software development and data-entry jobs (LinkedIn, 2016; Samant Raja, 2016). For

[21] See https://www.onetonline.org/link/summary/15-1132.00?redir=15-1031.00.

example, tech businesses are improving the participation of people with disabilities by requiring that team and client interactions as well as workplace activities be streamlined using digital technologies (Samant Raja, 2016). According to Mary Pat Radabaugh of IBM's Accessibility Center, "For most people, technology makes things easier. For people with disabilities, technology makes things possible" (National Council on Disability, 1993). In other words, technology can create the least restrictive work environment, thereby promoting social inclusion. According to disability literature, technology is a chief factor to integrating people with disabilities in mainstream society (Blanck, 2012). In fact, rapid technological changes over the past 30 years have benefited people with disabilities greatly. Technology may, for example:

> … enable people with hearing, speech, and cognitive impairments to communicate more easily through computers or hand-held devices, increase the opportunities for productive high-paying jobs among people in wheelchairs who are restricted in many manual and service jobs, and increase the potential for telecommuting (Schur et al., p: 137).

Regarding employment, it appears to help people with disabilities compensate for their functional limitations (Schur et al., 2013). For example, technologies that include screen readers assist people with visual impairments, and voice recognition software assists others with manual dexterity issues to read and write at a pace comparable to able-bodied individuals (Miesenberger, Klaus, Zagler, and Karshmer, 2012). Moreover, digital conference platforms like Microsoft's "Skype" and Google's "Hangouts," as well as employment-based social networking services like "LinkedIn" can enhance opportunities for employment, group participation, and more.

Technological developments have apparently created more employment opportunities for people with disabilities than before (Schur et al., 2013; Burgstahler,

2005; Hunt and Berkowitz, 1992). For example, the social networking firm, LinkedIn, has recognized that their workforce did not include many people with disabilities (3%) (LinkedIn, 2016). Consequently, LinkedIn initiated diversity hiring programs by integrating assistive technologies as part of their strategic plan.[22] Similarly, the software enterprise SAP, and the health insurer Aetna, have nearly 50% of their employees work from home through software that enables telecommuting.[23] By recognizing that belongingness is not limited to able-bodied personnel, both businesses offer telecommuting that can be especially helpful for their employees with mobility impairments (CNN, 2016; Schur et al., 2013).

Nations like Denmark have created landmark legislation that offers disabled citizens subsidies to purchase technology that enables their workforce participation (Hunt and Berkowitz, 1992). People with visual impairments can receive money from the Ministry of Social Affairs to enroll in vocational schools that offer computer training for workforce entry (Hunt and Berkowitz, 1992). Regarding low-skill jobs, people with disabilities benefit from the subsidies as well (Hunt and Berkowitz, 1992). In France, for instance, telemarketing has become more accessible and welcoming to people with visual impairments because of screen readers, braille displays, and modified computers that are subsidized by the government (Hunt and Berkowitz, 1992).

Samant Raja (2016) described how the workplace is becoming a virtual one due to "cloud-based content management and document sharing, software applications, internet-based audio and video communications, and remote collaboration platforms" (Samant Raja, 2016, p: 14). Technology is a bridge to employment that empowers

[22] See careers.linkedin.com/diversity-and-inclusion?trk=li_corpblog_corp_linkedin_diversity_report_patwadors.
[23] See http://money.cnn.com/2016/01/26/pf/work-from-home-jobs/.

people with disabilities to compete in what is becoming a digital workplace (Samant Raja, Adya, Killeen, and Scherer, 2014). The field evidence thus suggests that technology's proliferation and permeation improves employment opportunities for people with disabilities who want to work in software development and data entry (Ali et al., 2011; Samant Raja, 2016; Samant, Matter, Harniss, 2013).

Furthermore, the field evidence suggests that technology has the potential to ease stereotypes that are commonly held toward people with disabilities (Devine, 1989; Sherman, Allen, and Sacchi, 2012; Hamilton and Trolier, 1986; Hamilton and Sherman, 1994). Employers may be primed to believe that people with disabilities are less productive on average (Schwochau and Blanck, 2000; Stone and Colella, 1996; Lengnick-Hall et al., 2008; Schur et al., 2013). It is a learned relationship that almost ensures their unemployment or underemployment (at best) (Barnes, 2000; Boyle, 1997). For example, there is a common stereotype that people with disabilities are incapable of meeting high work demands, but can participate in less-demanding job-related activities. Consequently, vocational schools have created sheltered internships that offer students no actual job training, but "busy work" instead (Samant Raja, 2016). The advancements in technology can combat stereotypes of poor work productivity by radically reforming the meaning of work itself (Barnes, 2000). That is, the physical workplace may impose limitations on people with disabilities, whereas the virtual workplace may negate them (Barnes, 2000).

Thus, technology is possibly a catalyst in defeating role congruities. It may enable people with disabilities to more easily demonstrate competence and trustworthiness that is equal to that of able-bodied workers. Considering the evidence

from field experiments (1) and (2), technology is changing the meaning of work in ways that would greatly benefit people with disabilities (Barnes, 2000).

In sum, technology might be of greater value for people with disabilities than the general population because it has the potential to expand their chances at employment (Krueger and Kruse, 1995). Krueger and Kruse (1995) argued that technology "may generate large returns to people with disabilities because computer tech can compensate for the physical limitations inherent in many disabilities," (p: 32). According to Dual Processing theory, technology may shape employer perceptions to be more deliberate toward people with disabilities (i.e., System 2) or it may enable employers to sense stronger job-fit toward them. In both cases, hiring outcomes are expected to be more favorable. Therefore, the null effect is likely aided by technology that attenuates perceived stereotypes regarding their productivity.

According to Role Congruity and Social Dominance theory, the null effect also suggests that some employers are opposed to social stratification. Therefore, they likely want to hire more people with disabilities (Pratto et al., 1994). For example, Google endeavors to "unbias Googlers" as part of their training procedure by fostering fairness and inclusion through their "*Disability Alliance*." Its use of virtual work environments has created more inclusive teams that influence belongingness among employees with disabilities (Google, 2016).[24] Microsoft has similarly endeavored to "develop and bring to market software products, systems and services that are more usable and accessible, and to hire and retain qualified individuals with disabilities" (Sandler and Blanck, 2005, p: 40). Its effort to create a corporate culture of openness toward people with disabilities

[24] See rework.withgoogle.com/subjects/unbiasing/.

brought forth the "Centralized Disability Management" committee that collaborated with leadership to (1) address accommodation requests; (2) hire disability consultants; and (3) acquire funds to purchase or modify their workplace (Sandler and Blanck, 2005).

Walgreens has also endeavored to ease aversion toward disability through its disability inclusion program (Standifer, 2012). During 2007, Walgreens created the Anderson distribution facility that employs people with disabilities. Consequently, about 40% of its workforce have disabilities. This growth prompted the opening of a second distribution center in 2009, and similar programs have started in 18 other Walgreens distribution centers throughout the U.S, including its retail establishments (Standifer, 2012). Retirement provider, TIAA-CREF, has also attempted to improve employment opportunities for people with disabilities through its "Fruits of Employment" initiative that recruited working-age people with disabilities (Standifer, 2012). By originally purchasing farms to diversify its investment portfolio, the initiative was later restructured to integrate people with disabilities in the agricultural industry. The software firm Aspiritech has initiated a program in which their software testing division hired only people with disabilities, mainly those with Asperger's Syndrome (Standifer, 2012). According to Aspiritech, software testing requires intensity and focus, which are often characteristics of people with Asperger's who were trained to inspect software and report any flaws. The model inspired businesses overseas to adopt a similar approach in diversifying their workforce (Standifer, 2012).

In sum, these firms are attempting to defeat social role expectations that commonly perceive disability as incompatible with workforce participation (Eagly and Diekman, 2005; Schur et al., 2013; Baldwin and Johnson, 2006; Hahn, 1985). By

recognizing that customers and employees are diverse, they hope to ease group-based hierarchies between people with and without disabilities (Barnes and Mercer, 2005). The initiatives embody a signaling system that attempts to suppress stereotypes (Fiske and Taylor, 2013). According to Dual Processing, behavioral consequences of consistency seeking depend entirely on corporate culture that confirms or undermines a commonly shared belief about people with disabilities (Brewer and Feinstein, 1999; Kahneman and Frederick, 2002; Gawronski and Strack, 2012). Therefore, discrimination is likely diminished when a strong signaling system integrates accessibility and equal opportunity into its corporate culture (Sandler and Blanck, 2005; Gawronski and Strack, 2012).

The field evidence also showed that work qualifications mattered more than applicants' disabilities. Whereas disability seemingly overshadowed work qualification in Ameri and colleagues (forthcoming), here, highly-qualified applicants (with and without disabilities) were 33% more likely to receive expressions of employer interest than applicants who were moderately qualified. The results are consistent with Dual Processing in which employers were possibly more data-driven than schema-driven. Based on prior research, the study presumed that when job applicants present multiple attributes (i.e., highly-qualified and having a disability), disability would often achieve primacy and outweigh other traits because employers have a sensitivity to it (Colella, et al., 2012). However, the evidence indicated that employers of high- and low-skill occupations focused on characteristics that were relevant to the job.

Education (i.e., a reflection of qualification) appeared to have helped applicants overcome the drawbacks of disability. According to Dual Processing theory, education may have counteracted disability stereotypes. That is, when employers considered

applicants' education, they made more deliberate and rational job-fit assessments. Nevertheless, the results are still a cause for concern because there are large education gaps between people with and without disabilities (ODEP, 2010).

Regarding higher education, people with disabilities are less likely to attend college than those without disabilities (Schur et al., 2013). In fact, they are less likely to earn an associate degree than their counterparts (5% to 8%, respectively); a bachelor's degree (8% to 20%, respectively); or a graduate degree (5% to 12%, respectively) (Schur et al., 2013). Overall, 20% of people with disabilities have a post-secondary degree, which is considerably lower than people without disabilities (40%) (Schur et al., 2013). Excluding people with disabilities from acquiring an education begins as early as childhood (Hamlin and Simeonsson, 2006). For example, throughout the nineteenth and twentieth centuries, children with sensory impairments were often placed in "special" schools where education was virtually absent. These "warehouses" encouraged their segregation (Hamlin and Simeonsson, 2006). Although the Individuals with Disabilities Education Act (IDEA) now promises children with disabilities an education in the "least restrictive environment," society has been conditioned by the habit of segregation (World Health Organization/World Bank, 2011, p: 213; Bennett, 2009). According to the principles of Priming, mainstreaming education that motivates people with disabilities to resemble the "paper-persons" of this study requires training society about equal access. Until then, the results do not completely align with practical conditions that people with disabilities typically encounter.

Apart from technology and education that help facilitate inclusion, the evidence regarding field experiment (2) (i.e., low-skill jobs) might also be due to the

disproportionate number of workers with disabilities in service and blue-collar jobs (BLS, 2012). If people with disabilities are overrepresented in low-skill occupations, then perhaps employers are expected not to react unfavorably to applicants for low-skill jobs (Elvira and Cohen, 2001; Pugh et al., 2008). According to Role Congruity and Impression Making theory, if applicants with disabilities do not violate social role expectations, it should produce favorable hiring outcomes (Asch, 1946; Kant, 1969). According to the evidence regarding data-entry clerks, if organizations were reflections of the labor market, and the labor market was comprised of people with disabilities, it would explain why employers did not refuse them. Therefore, the demographic profile of the labor market may shape employer cognition and hiring outcomes (Pratto, et al., 1994; Pugh et al., 2008; Schur, Kruse, and Blanck, 2005).

The hiring outcomes are specifically clarified by the elemental approach of Impression Making theory (Fiske and Taylor, 2013). According to model, disability evokes unfavorable hiring outcomes when employers are unfamiliar with it in the workplace (Hoyt and Burnette, 2013). However, if disability is familiar, hiring outcomes are more likely to be favorable. In fact, research finds that repeated exposure to people with disabilities is associated with more positive expectancies and affective reactions toward them (Scherbaum et al., 2005). Therefore, the hiring behavior regarding data-entry jobs could be explained by context-dependence (Hoyt and Burnette, 2013).

Limitations of the Field Experiments. Like Ameri and colleagues (forthcoming), it is uncertain how many employers read the cover letters and were even aware of the applicants' disabilities. Obviously, if employers did not read the cover letters, disability status could not have influenced perceived job-fitness and hiring behavior. Employers

may not have read the cover letters for data entry applications because employee performance is easier to judge and unproductive employees can be quickly dismissed. Also, Research Design (A) could not measure beyond the callbacks received to evaluate subsequent employer behavior. That is, the hypothetical applicants were unable to participate in the subsequent stages that precede hiring (i.e., interview, job-offer, wage-negotiating), and were thus incapable of offering more insight to employment.

In addition, whereas the field experiments helped shed light on the average differences in hiring by randomly applying to thousands of jobs on behalf of hypothetical applicants like "Phillip Stone," the *real* Phillip Stone would not do this. He would be more strategic in his job search endeavors. Moreover, although Research Design (A) advanced the common field experiment by operating social media (i.e., LinkedIn) to validate the identities of hypothetical applicants, the study still manipulated cover letters that revealed disability status. It has been argued that disclosing disability this way should be avoided because, realistically, job applicants would censor attributes of themselves that are socially denigrated, especially during initial contact with employers.

Furthermore, it is possible that the comparisons by qualification were influenced by the names selected for highly- and moderately-qualified applicants, since they remained fixed for each one. However, qualifications were randomly apportioned to the applicants, so this is not a source of concern.

Regarding the ethical principles of informed consent and debriefing, Research Design (A) is perhaps morally questionable because employers were not cognizant of the duplicity embedded in their evaluating hypothetical job applicants. However, there are limitations to measuring discrimination using other research schemes, which warranted

the need for field experimentation. The societal benefits from field experiments compensated for employer's time loss because it more thoroughly determined whether employer discrimination exists. A lack of informed consent is therefore defensible.

Implications of the Laboratory Experiments. The laboratory experiments helped inform the field evidence of Research Design (A). While the field experiments examined whether people with disabilities were less likely than those without disabilities to receive expressions of employer interest in response to job applications, the lab experiments attempted to shed light on cognitive processes that took place during hiring decisions.

Like the field experiments, Research Design (B) found that people with disabilities were not discriminated against when participants determined job-fitness. Here, applicants with disabilities were more likely to receive a "callback" than those without disabilities. This is unlike the field experiments that found applicants with disabilities were as likely to find work in high- and low-skill occupations as able-bodied applicants. Furthermore, the lab evidence contrasted with field results from Ameri et al. (forthcoming) that examined accounting jobs.

Although the lab experiments did not test for the effects of priming, the evidence suggests that people can be less intuitively driven when they are conditioned to objectively evaluate job applicants. Regarding hiring behavior, it is arguable that the signaling system on diversity and inclusion provoked participants to be more deliberate in their perceptions of job-fitness toward applicants with disabilities. Although the null effect in the field experiments did not demonstrate the presumption that a signaling system—such as a corporate policy—shaped objective evaluations of job-fitness at work, the lab experiments may be consistent with this idea. In line with Dual Processing

theory, the signaling system may have enabled objectivity by suppressing stereotypes toward disability through System 2 reasoning.

The results also signified an empathy effect in which participants expressed generosity toward applicants with disabilities who demonstrated strong qualifications. This presumption, however, is not supported by the qualitative evidence that included common responses from participants who arguably expressed deliberate evaluations of job-fitness. For example, according to qualitative responses from the questionnaire, "Education," "Qualification," and "Prior Experience" were key factors that helped determine job-fitness toward applicants with disabilities. This assertion is further substantiated by the mean scores that were significantly higher for applicants with disabilities than their counterparts regarding stereotype content variables of perceived warmth and competence.[25] Stereotype content literature has posited that high-warmth and high-competence imbues a sense of admiration (Fiske et al., 2002). Regarding perceived job-fitness, admiration may lead to favoritism that results in positive hiring evaluations. Here, the correlation coefficient between perceived warmth and job-fitness was direct and statistically significant ($r = .130$, $p = .044$). This is also true for the correlation coefficient between perceived competence and job-fitness ($r = .241$, $p < .0005$). The positive value of the coefficient between the bivariate associations of (1) warmth and job-fitness and (2) competence and job-fitness indicated that the score of the two constructs moved similarly. That is, as scores on one variable moved up or down, the scores on the other variable moved in a similar direction. The relationships thus showed that higher warmth and higher competence are associated with employer interest.

[25] Although perceived competence was not significant ($p = .018$) due to the Bonferroni adjustment, it is still useful in studying hiring behavior.

It was consistent with the higher mean score for applicants with disabilities regarding perceived job-fitness. Moreover, the signaling system that primed participants to be "hierarchy-attenuating" may have been strong enough to facilitate deliberate reasoning through System 2 of Dual Processing. That is, priming participants about inclusion likely caused higher employer interest toward people with disabilities, and that interest was not diminished after participants were distracted. Therefore, the evidence collectively is consistent with the idea that participants suppressed associated stereotypes about disability, and were objectively evaluating applicants instead of expressing favoritism due to empathy.

In accordance with Dual Processing, it was originally predicted that distractions incited intuitive thinking, and subsequent discriminatory behavior. However, the lab experiments showed that deliberate thinking regarding hiring decisions were not diminished by a distraction. It could be that the signaling system (i.e., the inclusion policy) helped participants resist a Rebound Effect. In fact, corporate policies on affirmative action are found to be a strong predictor of hiring people with disabilities (Araten-Bergman, 2016). It likely functioned as a signal to thwart consistency seeking through System 1 reasoning that did not motivate discriminatory behavior. The signal may have been instrumental to suppressing stereotypes about disability by establishing fairness through System 2 reasoning (Cable and Turban, 2003; Roberson et al., 2005). This may explain why the distraction failed to trigger a Rebound Effect regarding the use of stereotypes.

Ameri and colleagues (forthcoming), found that people with disabilities were less likely to get callbacks than people without disabilities for accounting jobs. However, the

evidence here indicated otherwise. In fact, in the accounting lab, applicants with disabilities were more likely to get callbacks by participants than applicants without disabilities. The results are clarified by the Elemental Approach of Impression Making, including Dual Processing theory. The policy on inclusion (i.e., the signaling system) may have shaped participants' cognition by facilitating objective evaluations of job-fitness. Therefore, participants likely examined applicants with disabilities in relation to their environment. Since the environment portrayed itself as hierarchy-attenuating, participants may have also become hierarchy attenuating by favoring people with disabilities over people without disabilities who are overrepresented in accounting (Duff and Ferguson, 2011; Authors, 2007a, Authors 2007b). Regarding Dual Processing as it relates to the Elemental Approach of Impression Making theory, participants perhaps objectively evaluated applicants in relation to the environment. Dual Processing embodies the idea that there are two different modes of information handling between people. The modes—System 1 and System 2—are sequential and are triggered by a signal. That is, people weigh intuitive judgments against thoughtful ones depending on the strength of a signaling system (Kahneman and Frederick, 2002). Therefore, the diversity and inclusion policy that depicted a hierarchy-attenuating signal may have facilitated the shift from System 1 to System 2, thereby evoking objective hiring decisions.

It should also be noted that when an environment signals equality, as was the case here, people of that environment tend to uphold this norm, regardless of their private dispositions (Fiske and Taylor, 2013). The hierarchy-attenuating tone of the lab setting may have suppressed stereotypes that opposed social dominance (Pratto et al., 1994).

Social Dominance Orientation did not moderate the effects of disability on perceived job-fitness. That is, there was not a statistically significant interaction effect between Social Dominance Orientation and Disability type on job-fitness in the Step 2 model of the multiple linear regression. Although the magnitude and direction of the SDO coefficient indicated that each one point increase in SDO was associated with a 0.07-point decrease in P-J Fit, the magnitude and direction of the coefficient for disability group indicated that applicants with disabilities had about a 2-point increase in P-J Fit when compared to applicants without disabilities. Moreover, a moderated mediation (i.e., conditional process model) was also conducted to see if participants' SDO moderated the relationships among the independent variable of disability status and perceived competence of the applicant (i.e., SCM-Competence). Results indicated that SDO did not significantly moderate the relationship between disability status and perceived competence (path a), B = 0.40, *SE*B = 0.22; t (237) = 1.82, p = .070. In sum, the evidence collectively indicated that higher Social Dominance did not block employer interest toward applicants with disabilities. Therefore, the signal may have cognitively blocked stereotypes toward disability. Though this remains to be determined in future experiments that would properly test the effects of priming (i.e., testing whether signaling a commitment to equality would thwart discrimination toward applicants with disabilities).

Limitations of the Laboratory Experiments. It should first be noted that the laboratory experiments were immensely useful for generating insights about hiring behavior. Although the intention of the laboratory experiments was to understand the socio-cognitive processes that underlie hiring decisions toward people with disabilities,

behavioral symmetries between the field evidence of Research Design (A) and the simulations in Research Design (B) should be taken conservatively (Ross and Nisbett, 1991; Levitt and List, 2008).

The results of the laboratory experiments may be unreliable because of the artificiality of applicants, participants' roles, and atmosphere that possibly created exaggerated pro-social behavior. For example, the participants may have exhibited the norm of kindness that prohibited them from behaving offensively toward people with disabilities. If the setting led participants to make the moral choice not to discriminate against people with disabilities, then social desirability bias occurred.

One other limitation included composition. The lab participants included undergraduate business school students who are likely inexperienced with antidiscrimination policy and legislation. Although the participants were trained in management theory, it is uncertain whether they had practical experience as HR practitioners. Also, the laboratory participants did not share the same stakes as actual employers. Unlike for employers, there were no direct consequences for the lab participants, so response bias—i.e., the pro-social behavior that favored people with disabilities—might have concealed their prejudices and would offer little-to-no guidance about how real decisions are made in the workplace. Therefore, there could be issues of external validity because student participants may have exhibited exaggerated pro-social behavior unlike what naturally occurs in a real-world situation.

The environment in which these experiments took place (i.e., a conference room in an academic building) may have also influenced hiring decisions. The lab-based experiment did not perfectly mirror all the qualities that occur at work. If the setting did

not induce a sense of realism, participants' responses might have reflected that falseness. Therefore, the effect of disability on evaluating job-fitness, stereotype content, and social dominance were arguably weaker in the labs that did not resemble real workplaces. However, the purpose of these labs was not to determine what may occur in the workplace, but what may occur through a highly-controlled, simulated setting in which the effect of disability was measured. The context of the lab experiments was carefully designed to potentially offer qualitative insights about the socio-cognitive processes underlying hiring behavior.

The results also suggest that the distraction may not have been strong enough to induce a Rebound Effect. According to Stereotype Suppression, attentional resources (i.e., cognitive load) may not have been depleted enough to allow stereotypes to become salient. Future studies should consider strengthening the distraction by extending its presence or increasing the quantity.

Lastly, there was no baseline measurement of aversion or perceptions of incompetence regarding people with disabilities. Therefore, it is uncertain whether the signal was effective or not.

Future Directions. The field and laboratory experiments could yield meaningful insights about hiring behavior. However, there is still more to consider. Regarding the field experiments, information will be added to the current dataset on (1) the employer's location; (2) whether the employer is a federal contractor that is subject to affirmative action guidelines; (3) whether the employer is a publicly held firm or a government agency; and (4) their industry that would indicate whether newer ones like "tech" are more System 2-based than older industries. As an example of how further analysis might

change the results, in Ameri et al. (forthcoming), it was found that being a federal contractor had a positive effect on employer interest toward accountants with disabilities. Therefore, it is possible that the lack of a significant disability gap in the current study reflected the average of a positive disability effect among federal contractors (i.e., trying to meet affirmative action guidelines) and a negative disability effect among non-contractors.

The findings also suggest that many technology-based occupations might offer an inclusive environment for people with disabilities. Further research should consider employer behavior regarding employees and job applicants with disabilities, including research that considers the role of new technologies in structuring job tasks and providing more flexibility for employees with disabilities. Future research should also include additional field experiments—namely audit types that include live testers—that study other occupations, as well as qualitative inquiry to explore employer perceptions of job applicants with disabilities. Either approach can also help identify the most effective policies and practices to increase their employment opportunities.

Regarding laboratory experiments, future studies should consider applying Implicit Association Tests (IAT) to fully understand social cognition. That is, unless researchers can perfectly mimic the real-world in an artificial setting that includes actual HR-practitioners, there is a strong possibility participants may exhibit response bias. Measuring social cognition through laboratory experiments that simulate the field is arguably not as informative as IATs. Through IATs, the rapidness of an association that participants intuitively would make between people with disabilities and words like *inferiority* is believed to be a predictor of unfavorable hiring behavior (Lane et al., 2007;

Bertrand and Duflo, 2016). Research that used IATs showed that behavior is somewhat predicted by implicit attitudes (Wilson and Scior, 2014; Greenwald et al., 2009). Implicit attitudes appeared to influence stereotype content, Role Congruity, Dual Processing, and other factors that are essential in determining job-fitness (Dovidio et al., 2002). Whereas the laboratory approach in this study shed light on hiring behavior, a more refined lab-based approach that measures implicit attitudes is needed to further clarify employer perceptions of job applicants with disabilities and subsequent hiring decisions.

Future research should also test whether priming participants does in fact negate System 1 reasoning. Although the environment of this lab experiment was portrayed as hierarchy-attenuating, it is uncertain whether participants also became hierarchy attenuating by favoring people with disabilities over those without disabilities. Therefore, a more appropriate way to measure the effects of priming is to create a similar experiment, and offer the prime to only half of the sample. The results should then indicate whether hiring decisions toward applicants with disabilities reflect the environment's position on social stratification.

CONCLUSION

Overall, employers were as likely to express interest toward job applicants with disabilities as applicants without disabilities for low- and high-skill occupations. As opposed to other field experiments that examined disability and employment, the results of this study found that employer bias may not exist in every workplace. Therefore, it is possible that characteristics of the workplace (i.e., corporate culture) drives hiring discrimination.

From a social cognition standpoint, the null effect of the field experiments is best explained by how employers experience others in the workplace (Newcomb and Heider, 1958). Contrary to Ameri et al. (forthcoming) that examined disability discrimination in accounting, the field experiments of this study concentrated on software development (high-skill) and data-entry (low-skill) jobs, and discovered that people with disabilities were as likely to receive a "callback" as able-bodied individuals. In other words, disability may not have been critical in determining job-fitness. The results may suggest a leveling effect that technology has on job opportunities for people with disabilities in these occupations. Of course, technology is used in accounting jobs, however, this occupation demands more co-worker and client interaction. Hence, prejudice is likelier. Regarding the low-skill data-entry occupation, the results also showed that applicants with disabilities may not have violated their social role expectations. Considering that there is a disproportionately large number of people with disabilities in service and blue collar jobs, employers may not have reacted adversely because they were not surprised to encounter them.

Because the correspondence study could not directly test for social cognition using "paper persons," two complementary lab experiments attempted to examine the socio-cognitive processes underlying hiring behavior by simulating staffing sessions in a controlled setting. As in the field experiment, there was no evidence of discrimination. In fact, applicants with disabilities were rated more favorably on measures of job-fitness than applicants without disabilities. The results are consistent with the models of social cognition that helped explain the complex mental processes driving hiring behavior. That is, the company exhibited hierarchy-attenuating characteristics that opposed social stratification, and hiring behavior may have reflected it. Consistent with Dual Processing theory, the environment signaled equality that perhaps shaped deliberate hiring decisions in favor of qualified applicants with disabilities. This is one probably explanation as to why the distraction did not trigger a Rebound Effect. In sum, the lab evidence may be indicative of what occurred in the field experiments.

The intention of this "multi-method" approach was to extend the literature beyond existing evidence that has simply suggested employer discrimination exists. Ordinarily, studies that explored disability and employment only assessed employer attitudes. Prior research regarding the subject has not explored the process that underlies hiring behavior. Research on disability has been commonly outcome oriented, not process oriented. In fact, the studies that addressed hiring behavior generally predicted that an outcome would occur given a stimulus (Ali et al., 2011; Fiske and Taylor, 2013; Lengnick-Hall et al., 2008; Baldwin and Johnson, 2006). In most field experiments that explored labor market discrimination, applicant portfolios were manipulated to test the effects of a variable. Hiring behavior subsequently demonstrated the attitudinal change

by employers who encountered applicants with and without the manipulation (Bertrand and Mullainathan, 2004; Edelman et al., 2016; Boo and Trako, 2009; Ravaud et al., 1992; Pager, 2003; Laham et al., 2012; Baert, 2014; King and Ahmad, 2010; Bertrand and Duflo, 2016). None fully explained the intervening process that shaped behavior itself. Therefore, the principal approach of this study was to make associations through social cognition as a way of understanding how hiring outcomes occur.

The findings of this study point to the value of examining disability and employment through social cognition. Here, it was used to examine how employers perceived applicants with disabilities in comparison to other applicants without disabilities. By exploring disability and employment this way, scholars can fully appreciate the *why* and *how* of hiring decisions and the potential role of labor market discrimination.

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APPENDIX (F)

HIGH SKILL JOB: EXPERT COVER LETTER (DIS.)

NAME HERE
ADDRESS HERE
PHONE HERE
EMAIL HERE

TO WHOM IT MAY CONCERN:

I am responding to the advertised position in your IT department.

Since 2010, I served as a software developer for BANNERS Inc., where I have been repeatedly recognized for developing innovative solutions for multimillion-dollar, globally deployed software and systems. As director of software development, I am presently responsible for full lifecycle development of next-generation software, from initial requirement gathering to design, coding, testing, documentation and implementation.

Known for excellent client-facing skills, I have participated in proposals and presentations that have landed six-figure contracts. I also excel in merging business and user needs into high-quality, cost-effective design solutions while keeping within budgetary constraints.

My technical expertise includes cross-platform proficiency (Windows, Mac, Unix, Linux and VxWorks); fluency in 10 scripting/programming languages (including C, C++, Python, Java, Perl and SQL); and advanced knowledge of developer applications, tools, methodologies and best practices (including OOD, client/server architecture and self-test automation).

In addition to my professional experience at BANNERS, I volunteer for the DISABILITY ORGANIZATION HERE, where I organize conferences for people to meet, share stories and help one another. As an individual with a DISABILITY TYPE HERE, I am committed to providing my time and energy to those similar to myself. I believe that my volunteer experience has allowed me to learn how to effectively work with others in a supervisory capacity.

Please be advised that my disability does not interfere with my ability to perform the skills needed in a IT environment. I would be happy to answer any questions that you may have concerning this matter.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,
NAME HERE

HIGH SKILL JOB: EXPERT COVER LETTER (NO DIS.)

NAME HERE
ADDRESS HERE
PHONE HERE
EMAIL HERE

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I am responding to the advertised position in your IT department.

Since 2010, I served as a software developer for BANNERS Inc., where I have been repeatedly recognized for developing innovative solutions for multimillion-dollar, globally deployed software and systems. As director of software development, I am presently responsible for full lifecycle development of next-generation software, from initial requirement gathering to design, coding, testing, documentation and implementation.

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My technical expertise includes cross-platform proficiency (Windows, Mac, Unix, Linux and VxWorks); fluency in 10 scripting/programming languages (including C, C++, Python, Java, Perl and SQL); and advanced knowledge of developer applications, tools, methodologies and best practices (including OOD, client/server architecture and self-test automation).

In addition to my professional experience at BANNERS, I volunteer for the DISABILITY ORGANIZATION HERE, where I organize conferences for people to meet, share stories and help one another. As someone who has a brother that lives with a disability, I am committed to providing my time and energy to those similar to him. I believe that my volunteer experience has allowed me to learn how to effectively work with others in a supervisory capacity.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,

NAME HERE

HIGH SKILL JOB: NOVICE COVER LETTER (DIS.)

NAME HERE
ADDRESS HERE
PHONE HERE
EMAIL HERE

TO WHOM IT MAY CONCERN:

I am responding to the advertised position in your IT department.

Since 2015, I served as a software developer for BANNERS Inc., where I have been repeatedly recognized for developing and enhancing programs using Java, C and C++, contributing to solutions that streamlined processes, increased accuracy and lowered costs.

My technical expertise includes cross-platform proficiency (Windows, Mac, Unix, Linux and VxWorks); fluency in 10 scripting/programming languages (including C, C++, Python, Java, Perl and SQL).

In addition to my professional experience at BANNERS, I volunteer for the DISABILITY ORGANIZATION HERE, Paraplegic Division, where I organize conferences for people to meet, share stories and help one another. As an individual with DISABILITY TYPE HERE, I am committed to providing my time and energy to those similar to myself. I believe that my volunteer experience has allowed me to learn how to effectively work with others in a supervisory capacity.

Please be advised that my disability does not interfere with my ability to perform the skills needed in a IT environment. I would be happy to answer any questions that you may have concerning this matter.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,
NAME HERE

HIGH SKILL JOB: NOVICE COVER LETTER (NO DIS.)

NAME HERE
ADDRESS HERE
PHONE HERE
EMAIL HERE

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My technical expertise includes cross-platform proficiency (Windows, Mac, Unix, Linux and VxWorks); fluency in 10 scripting/programming languages (including C, C++, Python, Java, Perl and SQL).

In addition to my professional experience at BANNERS, I volunteer for the DISABILITY ORGANIZATION HERE, where I organize conferences for people to meet, share stories and help one another. As someone who has a brother that lives with a disability, I am committed to providing my time and energy to those similar to him. I believe that my volunteer experience has allowed me to learn how to effectively work with others in a supervisory capacity.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,
NAME HERE

HIGH SKILL JOB: EXPERT RESUME

Address here | Telephone here
Line 2 | Email here

NAME HERE

EDUCATION

Rutgers University, School of Arts and Sciences
M.S. Computer Science, May 2010
B.S. Computer Science, May 2007

CERTIFICATION

MSCD, 2015
MCAD, 2013
CST, 2011

EXPERTISE

Application Development; Service-Oriented Architecture; Enterprise Implementations; Software Development Lifecycle; Release Management; B2B Integrations; Project Management; Offshore Development Operations; QA & UAT Management; Team Building & Leaders

PROFESSIONAL

BANNERS Inc. (2010 to Present): City, State here
Director of Software Development, 2013 to present
Senior Software Developer, 2011 to 2013
Software Developer / Tester, 2010 to 2011

Summary: Present director-level role overseeing firm's software development activities. Manage a $4.5M R&D budget and a twelve-member developer team. Provide cradle-to-grave oversight of software project management, leading to research, design development, documentation, testing and rollout of enterprise applications

- Designed software solutions that drive continuous improvement to processes systems, work flow and customer responsiveness
- Mentored development teams in Agile SDLC and RAS best practices
- Delivered developments such as Web-based customer data-entry applications; software that automated customer loan data collection and processing functions; systems for securely handling electronic funds transfers; and browser plug-ins enabling failsafe recovery of Internet file transfers
- Drove all phases of enterprise integration and process improvement projects to successful completion, including application availability initiatives (e.g., Oracle RAC, WebLogic clustering, data replication) and the implementation of single site-fall-over and recovery options
- Reduced R&D budget from $6M to $4.5M while increasing service levels and improving product stability

MIND LNX LLC. (2007 to 2010): City, State here
Programmer

Summary: Hired as a full time programmer following work performance

- Created Facebook applications for multiple insurance and banking clients, leveraging social media channels to help businesses stay competitive and build customer loyalty
- Developed and enhanced programs using Java, C and C++, contributing to solutions that streamlined processes, increased accuracy, and lowered costs

LANGUAGES
C++, C#, JAVA, Python, JavaScript
Delphi, Visual Basic, SQL, HTML

DATABASE
Oracle, PL/SQL, IDBS, Sybase

NETWORKING
TCP/IP, UDP, HTTP,
SunLink X.25

SYSTEMS
Windows, Mac,
Linux, UNIX,
.Net Framework

SOFTWARE
TIBCO, IBM, WebSphere MQ, Apache, Sun ONE,
Business Objects, JBoss, BEA WebLogic

DEVELOPMENT TOOLS
RAD, OOAD, Integrated Software Development, Google Web Toolkit
Integrated Software Development, Microsoft Visual Studio

AFFILITATIONS

- Disability organization here - Volunteer
- Association for Coding Professionals - Founder

HIGH SKILL JOB: NOVICE RESUME

Address here | NAME HERE | Telephone here
Line 2 | Email here

EDUCATION

Rutgers University, School of Arts and Sciences
B.S. Computer Science, May 2015
GPA: 4.0, summa cum laude

EXPERTISE

Innovative software engineer, offering one-years of experience in the full software development lifecycle—from concept through delivery of next generation applications and customizable solutions. Known for excellent troubleshooting skills—able to analyze code and engineer well-researched, cost-effective, and responsive solutions.

PROFESSIONAL

BANNERS Inc. (2015 to Present): City, State here
Software Developer
Summary: Provide DOS design for one of the construction industry's leading project management platforms.

- Contribute software engineering expertise in the development of products through the software lifecycle—from requirements definition to successful deployment.
- Facilitate customization of systems by encouraging software engineering team to adopt emerging standards for software application development architecture and tools.
- Participate in sales presentations due to ability to translate user needs into lay terms—Helped sales team close five deals generating more than $150K in revenue.
- Excelled in rapid application development and management of technology issues for assigned projects—earning the highest customer satisfaction rating for all software solutions delivered.
- Introduced methods and best practices that enhanced product definition, releases processes, and customization of applications to user needs.

LANGUAGES
C++, C#, JAVA, Python, JavaScript
Delphi, Visual Basic, SQL, HTML

DATABASE
Oracle, PL/SQL, IDBS, Sybase

NETWORKING
TCP/IP, UDP, HTTP,
SunLink X.25

SYSTEMS
Windows, Mac,
Linux, UNIX,
.Net Framework

SOFTWARE
TIBCO, IBM, WebSphere MQ, Apache, Sun ONE,
Business Objects, JBoss, BEA WebLogic

DEVELOPMENT TOOLS
RAD, DOAD, Integrated Software Development, Google Web Toolkit
Integrated Software Development, Microsoft Visual Studio

AFFILITATIONS

- Disability organization here-Volunteer
- Association for Coding Professionals-Founder

LOW SKILL JOB: EXPERT COVER LETTER (DIS.)

NAME HERE
ADDRESS HERE
PHONE HERE
EMAIL HERE

TO WHOM IT MAY CONCERN:

I am responding to the advertised position in your data entry department.

Since 2010, I served as a data entry clerk for BANNERS Inc., where I have been repeatedly recognized for being articulate, detail oriented, and capable. I have knowledge of administrative and clerical procedures, and systems that include word processing, managing files and records, stenography and transcription, and designing forms.

My technical expertise includes proficiency in typing and numeric key entry, with a notably fast and accurate keyboard and 10-key input ability (90+ words per minute). I have knowledge of database software, particularly Microsoft Office. I also possess good spelling, grammar and punctuation skills, as well as strong reading comprehension.

In addition to my professional experience at BANNERS, I volunteer for the DISABILITY ORGANIZATION HERE, where I organize conferences for people to meet, share stories and help one another. As an individual with a DISABILITY TYPE HERE, I am committed to providing my time and energy to those similar to myself. I believe that my volunteer experience has allowed me to learn how to effectively work with others in a supervisory capacity.

Please be advised that my disability does not interfere with my ability to perform the skills needed in a data entry environment. I would be happy to answer any questions that you may have concerning this matter.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,
NAME HERE

LOW SKILL JOB: EXPERT COVER LETTER (NO DIS.)

NAME HERE
ADDRESS HERE
PHONE HERE
EMAIL HERE

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I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,
NAME HERE

LOW SKILL JOB: NOVICE COVER LETTER (DIS.)

NAME HERE
ADDRESS HERE
PHONE HERE
EMAIL HERE

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Please be advised that my disability does not interfere with my ability to perform the skills needed in a data entry environment. I would be happy to answer any questions that you may have concerning this matter.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,
NAME HERE

LOW SKILL JOB: NOVICE COVER LETTER (NO DIS.)

NAME HERE
ADDRESS HERE
PHONE HERE
EMAIL HERE

TO WHOM IT MAY CONCERN:

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Since 2015, I served as a data entry clerk for BANNERS Inc., where I have been repeatedly recognized for being articulate, detail oriented, and capable. I have knowledge of administrative and clerical procedures, and systems that include word processing, managing files and records, stenography and transcription, and designing forms.

My technical expertise includes proficiency in typing and numeric key entry, with a notably fast and accurate keyboard and 10-key input ability (90+ words per minute). I have knowledge of database software, particularly Microsoft Office. I also possess good spelling, grammar and punctuation skills, as well as strong reading comprehension.

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I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,
NAME HERE

LOW SKILL JOB: EXPERT RESUME

Address here | NAME HERE | Telephone here
Line 2 | | Email here

EDUCATION

John P. Jones High School
Diploma, June 2007

EXPERTISE

Nine-years experience as a data-entry clerk who is results driven. Proficient typing and numeric key entry skills. Knowledge of database software, spreadsheets and word processing. Possesses good spelling, grammar and punctuation skills, as well as strong reading comprehension.

PROFESSIONAL

BANNERS Inc. (2010 to Present): City, State here
Data Entry Clerk
Summary: Clerk who exhibits strong organization, typing, and data entry abilities. Uses strong knowledge of Microsoft Office, with fast, accurate keyboard and 10-key by touch ability.

- Prepares source data for computer entry by compiling and sorting information
- Assists owner in streamlining data-entry procedures to facilitate growth into wholesale business
- Enters customer orders, vendor receipts, and invoices into Microsoft Excel
- Compiles statistical reports on payments, orders, and outstanding invoices
- Transcribes phone messages for owner and manages email communications
- Processes customer and account source documents by reviewing data for deficiencies; resolving discrepancies by using standard procedures or returning incomplete documents to the team leader for resolution
- Enters customer and account data by inputting alphabetic and numeric information on keyboard or optical scanner according to screen format
- Verifies entered customer and account data by reviewing, correcting, deleting, or reentering data; combining data from both systems when account information is incomplete; removing files to reduce duplication of data
- Secures information by completing data base backups
- Maintains customer confidence and protects operations by keeping information confidential

MIND LNX LLC. (2007 to 2010): City, State here
Data Entry Clerk
Summary: Employed to enter or update data into a computer system database, often from paper documents using a keyboard, optical scanner, or data recorder; Processed over 3,000 customer orders per month.

- Inputted hand-written customer orders and cash, credit, and check payments into system
- Gathered statistical information about clients and purchases, and created reports for owner
- Confidentially handled business tax information, legal documents, and customer information
- Updated records for customers and employees on a daily basis
- Supported additional functions in administrative, payroll, and reception areas as needed
- Logged payments and refunds into system
- Worked with owner to improve data system and convert to computer-based ordering and payment format
- Entered information into databases and software programs that included Microsoft Excel
- Checked inputted data for recording errors; Reported problems with the data

AFFILITATIONS

- Disability organization here - Volunteer
- Association for Data Entry Professionals - Founder

LOW SKILL JOB: NOVICE RESUME

Address here | NAME HERE | Telephone here
Line 2 | Email here

EDUCATION

John P. Jones High School
Diploma, June 2015
GPA: 4.0, summa cum laude

EXPERTISE

One-years experience as a data-entry clerk who is results driven. Proficient typing and numeric key entry skills. Knowledge of database software, spreadsheets and word processing. Possesses good spelling, grammar and punctuation skills, as well as strong reading comprehension.

PROFESSIONAL

BANNERS Inc. (2015 to Present): City, State here
Data Entry Clerk
Summary: Clerk who exhibits strong organization, typing, and data entry abilities. Uses strong knowledge of Microsoft Office, with fast, accurate keyboard and 10-key by touch ability.

- Prepares source data for computer entry by compiling and sorting information.
- Assists owner in streamlining data-entry procedures to facilitate growth into wholesale business.
- Enters customer orders, vendor receipts, and invoices into Microsoft Excel.
- Compiles statistical reports on payments, orders, and outstanding invoices.
- Transcribes phone messages for owner and manages email communications.
- Processes customer and account source documents by reviewing data for deficiencies; resolving discrepancies by using standard procedures or returning incomplete documents to the team leader for resolution.
- Enters customer and account data by inputting alphabetic and numeric information on keyboard or optical scanner according to screen format.
- Verifies entered customer and account data by reviewing, correcting, deleting, or reentering data; combining data from both systems when account information is incomplete; removing files to reduce duplication of data.
- Secures information by completing data base backups.
- Maintains customer confidence and protects operations by keeping information confidential.

AFFILITATIONS

- Disability organization here - Volunteer
- Association for Data Entry Professionals - Founder

APPENDIX (L)

DIVERSITY & INCLUSION POLICY

Gamma North America is committed to fostering, cultivating and preserving a culture of diversity and inclusion.

Our human capital is the most valuable asset we have. The collective sum of the individual differences, life experiences, knowledge, inventiveness, innovation, self-expression, unique capabilities and talent that our employees invest in their work represents a significant part of not only our culture, but our reputation and company's achievement as well.

We embrace and encourage our employees' differences in age, color, disability, ethnicity, family or marital status, gender identity or expression, language, national origin, physical and mental ability, political affiliation, race, religion, sexual orientation, socio-economic status, veteran status, and other characteristics that make our employees unique.

Gamma North America's diversity initiative are applicable—but not limited—to our practices and policies on recruitment and selection; compensation and benefits; professional development and training; promotions; transfers; social and recreational programs; layoffs; terminations; and the ongoing development of a work environment built on the premise of diversity equity that encourages and enforces:

- Respectful communication and cooperation between all employees.
- Teamwork and employee participation, permitting the representation of all groups and employee perspectives.
- Work/life balance through flexible work schedules to accommodate employees' varying needs.
- Employer and employee contributions to the communities we serve to promote a greater understanding and respect for the diversity.

All employees of Gamma North America have a responsibility to treat others with dignity and respect always. All employees are expected to exhibit conduct that reflects inclusion during work, at work functions on or off the work site, and at all other company-sponsored and participative events.

SOFTWARE DEVELOPMENT LAB: JOB DESCRIPTION

Software Developer
Gamma North America, Inc.

Gamma North America (GNA) is searching for a highly-qualified **Software Developer** to join our team of exceptionally dedicated professionals in an exciting and rewarding fast paced highly successful company. Leveraging the outstanding Gamma reputation and our strong relationship with the US DoD, Homeland Security and large Prime Contractors for more than three decades, Gamma has developed a significant presence in the U.S. as provider of mission critical solutions for aerospace, defense and security sectors. We are known as an independent, agile, and fast responding partner for mission customized solutions. For further information, please visit www.gammanorthamerica.com.

Job Type: Full-time

Objective:
The Software Developer will design and implement software of embedded devices and systems from requirements to production and deployment. The Software Developer will participate in:

- Architecture and requirements reviews
- Peer reviews of work products derived from requirements specifications
- Ensuring that the requirements are interpreted correctly

Job Requirements:

- Design, develop, code, test and debug system software
- Review code and design
- Interface with hardware design and development
- Work to implement an Anti-Tamper solution
- Analyze and enhance efficiency, stability and scalability of system resources
- Integrate and validate new product designs
- Support Software QA and optimize I/O performance
- Provide post production support
- Assess third party and open source software

Minimum Education and Experience:

- Bachelor's Degree in Computer Science (Master's Degree in Computer Science is a plus), IT or Engineering and 9 years' work experience in Software Engineering OR equivalent experience

Required Skills and Experience:

- Experience in hands-on development and troubleshooting on embedded targets
- 5 or more years solid programming experience in C or C++
- Proven experience in embedded systems design with preemptive, multi-tasking real-time operating systems (e.g. VxWorks, Green Hills)
- Familiarity with software configuration management tools, and defect tracking tools
- Excellent knowledge of OS coding techniques, IP protocols, interfaces and hardware subsystems
- Strong oral and written communication skills
- Familiarity with MS Office applications to include MS Project

Gamma North America, Inc. is an Equal Opportunity/ Affirmative Action employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin, and requires affirmative action to ensure equality of opportunity in all aspects of employment. Executive Order 11246, as amended, protects applicants and employees from discrimination based on inquiring about, disclosing, or discussing their compensation or the compensation of applicants or employees.

ACCOUNTING LAB: JOB DESCRIPTION

Senior Accountant
Gamma North America, Inc.

Gamma North America (GNA) is searching for a highly-qualified **Senior Accountant** to join our team of exceptionally dedicated professionals in an exciting and rewarding fast paced highly successful company. Leveraging the outstanding Gamma reputation and our strong relationship with the US DoD, Homeland Security and large Prime Contractors for more than three decades, Gamma has developed a significant presence in the U.S. as provider of mission critical solutions for aerospace, defense and security sectors. We are known as an independent, agile, and fast responding partner for mission customized solutions. For further information, please visit www.gammanorthamerica.com.

Job Type: Full-time

Objective:
The Senior Accountant will prepare balance sheets, profit and loss statements, and other financial reports. The Senior Accountant will participate in:

- Analyzing trends, costs, revenues, financial commitments, and obligations incurred to predict future revenues and expenses.
- Reporting organization's finances to management, and offers suggestions about resource utilization, tax strategies, and assumptions underlying budget forecasts.

Job Requirements:

- Manages all aspects of the company's financial and accounting functions (i.e., budgeting, forecasting, cash management, job cost accounting, accounts payable/receivable, taxes, and bank reconciliation).
- Prepares and publishes timely monthly, quarterly, and year-end financial statements.
- Coordinates audit activities for external auditors.
- Maintains key relationships with banks, clients, auditors, and other third parties
- Complies with local, state, and federal government reporting requirements and tax filings.
- Coordinates and directs the preparation of the budget and financial forecasts.

Minimum Education and Experience:

- Bachelor's degree in Accounting, plus 6-10 years of professional accounting experience required
- CPA preferred

Required Skills and Experience:

- Perform monthly accounting duties including journal entries, accruals and account reconciliations
- Prepare revenue checklists and memos as needed for complex contracts
- Execute monthly close process in accordance with close calendar
- Prepare balance sheet, income statement and cash flow reports
- Identify process and/or system improvement opportunities, recommend solutions and assist with implementation of approved changes
- Assist with completion of external audit process by preparing supporting schedules
- Ensure processes and procedures follow internal controls and company policies

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SOFTWARE DEVELOPMENT LAB: COVER LETTER (NO DIS.)

Phillip Stone
94 Rockafeller Rd., Newark, NJ 07103
732-640-8118
Phillip.Stone130@gmail.com

TO WHOM IT MAY CONCERN:

I am responding to the advertised position in your IT department.

Since 2010, I served as a software developer for BANNERS Inc., where I have been repeatedly recognized for developing innovative solutions for multimillion-dollar, globally deployed software and systems. As director of software development, I am presently responsible for full lifecycle development of next-generation software, from initial requirement gathering to design, coding, testing, documentation and implementation.

Known for excellent client-facing skills, I have participated in proposals and presentations that have landed six-figure contracts. I also excel in merging business and user needs into high-quality, cost-effective design solutions while keeping within budgetary constraints.

My technical expertise includes cross-platform proficiency (Windows, Mac, Unix, Linux and VxWorks); fluency in 10 scripting/programming languages (including C, C++, Python, Java, Perl and SQL); and advanced knowledge of developer applications, tools, methodologies and best practices (including OOD, client/server architecture and self-test automation).

In addition to my professional experience at BANNERS, I volunteer for the National Paraplegia Association, where I organize conferences for people to meet, share stories and help one another. As someone who has a brother that lives with a disability, I am committed to providing my time and energy to those similar to him. I believe that my volunteer experience has allowed me to learn how to effectively work with others in a supervisory capacity.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,
Phillip Stone

SOFTWARE DEVELOPMENT LAB: COVER LETTER (DIS.)

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In addition to my professional experience at BANNERS, I volunteer for the National Paraplegia Association, where I organize conferences for people to meet, share stories and help one another. As an individual with a spinal cord injury, I am committed to providing my time and energy to those similar to myself. I believe that my volunteer experience has allowed me to learn how to effectively work with others in a supervisory capacity.

Please be advised that my disability does not interfere with my ability to perform the skills needed in an IT work environment. I would be happy to answer any questions that you may have concerning this matter.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,
Phillip Stone

ACCOUNTING DEVELOPMENT LAB: COVER LETTER (NO DIS.)

Phillip Stone
94 Rockafeller Rd., Newark, NJ 07103
732-640-8118
Phillip.Stone130@gmail.com

To Whom It May Concern:

I am responding to the advertised position in your finance department. I am a licensed public accountant with a B.S. in Accounting from Rutgers University. Presently, I am an Accounting Manager at GENE LLC where I prepare monthly, quarterly and annually audited financial statements for a public healthcare company with net revenues of $500 million.

In addition to my professional experience at GENE LLC, I volunteer for the National Paraplegia Association, where I organize conferences for people to meet, share stories and help one another. As someone who has a brother that lives with a disability, I am committed to providing my time and energy to those similar to him. I believe that my volunteer experience has allowed me to learn how to effectively work with others in a supervisory capacity.

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Phillip Stone

ACCOUNTING DEVELOPMENT LAB: COVER LETTER (DIS.)

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Please be advised that my disability does not interfere with my ability to perform the skills needed in an accounting work environment. I would be happy to answer any questions that you may have concerning this matter.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,
Phillip Stone

DISTRACTION: GRIEVANCE NOTICE

21 January 2017
Attention: Mr. Ameri
Gamma North America, Inc.

Dear Mr. Ameri,

I am writing to seek your help in resolving a problem that I am experiencing at work. It is a problem that is causing me some concern and that I have been unable to solve without bringing to your attention. I hope in doing so we can deal with the issue quickly and amicably.

In December, sometime before the office Christmas party, my boss said that she would have to review my working arrangements in the new year. I currently work from home on Fridays as I find commuting into town five days a week very tiring. Up to now, she has been very supportive of me, but her attitude to me has changed since I told her I was pregnant. That was in late October or early November. Since then, she has been criticizing my work in ways she never did before, making derogatory comments about me to some of my colleagues and they have started saying that I don't pull my weight and am never in the office. In fact, I have been in the office four days a week and on the day, I work from home, I get through more work than I do in the office. My boss has acknowledged this in the past. I was very worried over the Christmas period and hoped things would get better in the new year. However, on 2 January, the first day back at work, my boss said that I would have to work in the office every day of the week until I went on maternity leave. When I asked why, she just said she needed staff in the office. I said I would try, but I had been finding it hard before I was pregnant, and it was only likely to get harder as my pregnancy advanced. She said if I couldn't work in the office, I should look at other options. I asked what she meant, and she said I was free to go elsewhere.

I raised this matter informally, but haven't been satisfied with the outcome. I tried talking to my boss but she refused to talk to me about this and said she had said all she had to say on the matter.
I was very upset about this as I have been in this job for over 10 years and have not had any problems in the past. I enjoy my work and cannot understand why her attitude to me has changed. I was so worried and upset that I have had to go to my GP and have been signed off sick for a month.

I would welcome the chance to talk this through with you at a convenient time and place. I would like to be accompanied to the meeting with my attorney.

Yours sincerely,

Jade Caine
Marketing Associate
Sales Division

QUESTIONNAIRE

The executive hiring team here at Gamma North America requests your participation in a brief survey about the candidate presented before you today. Your participation in the survey is completely voluntary and **all** your responses will be kept confidential. No personally identifiable information will be associated with your responses to any reports of these data. When formulating your responses, please answer honestly and thoroughly. Thank you for your time.

Circle the response that best characterizes how you feel about the statements below, from: 1 = Entirely disagree, to 7 = Entirely agree.

This applicant possesses the knowledge, skills, and abilities necessary to perform the duties of this job.

Strongly disagree	Mostly disagree	Somewhat disagree	Undecided	Somewhat agree	Mostly agree	Strongly agree
1	2	3	4	5	6	7

I believe this applicant can achieve a high level of performance in this job.

Strongly disagree	Mostly disagree	Somewhat disagree	Undecided	Somewhat agree	Mostly agree	Strongly agree
1	2	3	4	5	6	7

Overall, I would evaluate this candidate positively.

Strongly disagree	Mostly disagree	Somewhat disagree	Undecided	Somewhat agree	Mostly agree	Strongly agree
1	2	3	4	5	6	7

I would recommend extending an interview to this applicant.

Strongly disagree	Mostly disagree	Somewhat disagree	Undecided	Somewhat agree	Mostly agree	Strongly agree
1	2	3	4	5	6	7

I would recommend extending a job to this applicant.

Strongly disagree	Mostly disagree	Somewhat disagree	Undecided	Somewhat agree	Mostly agree	Strongly agree
1	2	3	4	5	6	7

What factors were most important when determining whether you should interview the applicant?

What factors were most important when determining whether you should hire the applicant?

Based on the cover letter, indicate the extent to which the following characteristics describe the applicant from: 1 = Not at all, 2 = Slightly, 3 = Moderately, 4 = Very, to 5 = Extremely.

Competence Scales

Capable	1	2	3	4	5
Competent	1	2	3	4	5
Confident	1	2	3	4	5
Intelligent	1	2	3	4	5
Efficient	1	2	3	4	5
Skillful	1	2	3	4	5

Warmth Scales

Warm	1	2	3	4	5
Good-natured	1	2	3	4	5
Sincere	1	2	3	4	5
Friendly	1	2	3	4	5
Well-intentioned	1	2	3	4	5
Trustworthy	1	2	3	4	5

Which of the following statements do you have a positive or negative feeling towards? Circle the response that best characterizes how you feel about the statements below, from: 1 = Very negative, to 7 = Very positive.

Some groups of people are simply inferior to other groups.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

In getting what you want, it is sometimes necessary to use force against other groups.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

It's OK if some groups have more of a chance in life than others.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

To get ahead in life, it is sometimes necessary to step on other groups.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

If certain groups stayed in their place, we would have fewer problems.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

It's probably a good thing that certain groups are at the top and other groups are at the bottom.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

Inferior groups should stay in their place.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

Sometimes other groups must be kept in their place.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

It would be good if groups could be equal.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

Group equality should be our ideal.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

All groups should be given an equal chance in life.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

We should do what we can to equalize conditions for different groups.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

Increased social equality.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

We would have fewer problems if we treated people more equally.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

We should strive to make incomes as equal as possible.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

No one group should dominate in society.

Very negative	Negative	Slightly negative	Neither positive nor negative	Slightly positive	Positive	Very positive
1	2	3	4	5	6	7

In this final section, please fill out the following demographic information as accurately as possible.

What is your age? _____

What is your gender/sex? _____