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Implicit Biases: Employee Selection Using Social Networking Sites

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IMPLICIT BIASES: EMPLOYEE SELECTION USING SOCIAL NETWORKING SITES

by

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ABSTRACT

Recent research has shown that the rate of use of Social Networking Sites (SNSs) for recruitment, screening, and selection purposes is rising steadily (Alexander et al., 2019; CareerArc, 2021; SHRM, 2013), prompting many to call for research regarding the fairness and effectiveness of SNSs for these purposes (Alexander et al., 2019; Blacksmith & Poeppelman, 2014; Davison et al., 2011; Davison et al., 2012; Dwyer et al., 2007). The current study focuses on LinkedIn, a SNS designed specifically to connect working professionals and explores implicit racial discrimination in hiring. Implicit racial discrimination occurs when an individual unconsciously treats another individual prejudicially based on perceived or actual racial-group membership. The current study examined whether participants with at least some hiring experience (representing "employers" in this study) provided higher employability ratings and starting salary estimates to applicants whose race reflected their own compared to applicants whose race did not reflect their own. Participants were randomly assigned to groups wherein each group was shown an identical job description and then asked to rate LinkedIn profiles differing only in one aspect: the race of the applicant. Each participant rated a LinkedIn profile displaying a picture of either a white, black, or Hispanic applicant, and for the purposes of the study were coded as either matching or not matching the applicant's race (one independent variable, two levels).

The same picture of the same individual was used for each LinkedIn profile, his skin tone changed with photo-editing software to approximate each race. Participants did not assign significantly higher ratings of employability or a higher proposed salary to LinkedIn profiles containing an applicant picture that matched their race.

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CHAPTER 1

INTRODUCTION

Prevalence of SNS Usage

Employer's use of social networking sites (SNSs) is rising steadily. In a 2013 survey performed by the Society for Human Resource Management (SHRM, 2013), 77% of respondents indicated that their organization uses SNSs to gather applicant information during the recruitment process. This number is up from 34% in 2008. Only 11% of respondents indicated that their organizations do not use, nor do they intend to use, SNSs for recruitment purposes, down from 45% in 2008. A 2016 study found that 73% of millennials obtained their last job through engaging with social media (Weiner, 2016), lending more credence to the notion that SNSs are playing, and will continue to play, a significant role in the future of hiring. A more recent survey has further supported the rising trend of hiring through social media with 86% of job seekers indicating that they use SNSs in their job search and 92% of employers indicating that they use SNSs for their talent search and recruitment efforts. This same survey found that 47% of SNS-using job seekers increased their SNS job seeking-usage by at least one hour per day in 2020. Similarly, 35% of employers claimed to have increased their SNS recruiting efforts in 2020 (CareerArc, 2021).

Interestingly, younger generations like to think of their employers as “friends” (Goodmon et al., 2014). Actively recruiting and hiring through social media can cultivate this image, garnering more interest and engagement from younger generations in the workforce. It stands to reason that these younger workers will continue to engage with social media as a means of finding employment, and there are no indications that this trend is likely to change as even younger generations come of working age. As more and more employers are utilizing SNSs as a means for recruitment, screening, and selection, and more job seekers are engaging with social media to find employment (CareerArc, 2021; SHRM, 2013; Weiner, 2016), it is becoming clear that these methods must be examined to determine their validity and fairness. The current study focuses on the latter aspect of SNSs as recruitment, screening, and selection tools – specifically, whether employers’ racial biases affect their views of applicants of varying skin colors.

Employment and Racial Discrimination

Previous research has shown that discrimination during the applicant recruitment, screening, and/or selection process can be problematic. A meta-analysis by Quillian et al. (2019) examined rates of hiring discrimination and the differences across countries. This study included data from nine countries in Europe and North America and included 97 field experiments that studied over 200,000 individuals. The authors found evidence of discrimination in all nine (majority-white) countries against non-white native individuals. Discrimination varied strongly by country, with the rate of callbacks being roughly 50% greater in favor of white individuals compared to non-white individuals in those countries with the largest disparities. Countries with the lowest disparities saw callback rates that

were roughly 25% greater in favor of white individuals compared to non-white individuals.

Racial discrimination in hiring has been studied rather intently and documented in numerous studies over the past two decades. Bertrand and Mullainathan (2004) concluded that information about an applicant's race may alter an employer's hiring decision when they found that job applications listing distinctly white names had a 50% better chance of receiving a call back from an employer compared to those that listed distinctly black names, despite equivalence in application quality. A similar study by Carlsson and Rooth (2007) looked at the difference between implicit and explicit discrimination in hiring practices in Sweden. The researchers conducted a field experiment consisting of two stages that measured the difference in callbacks for applications listing Muslim-sounding names and applications listing Swedish-sounding names, and the degree to which employers' implicit attitudes concerning racial stereotypes correlate with their propensity to follow up with applicants (which were fictitious in the study) with Muslim- or Swedish-sounding names. Applications listing Swedish-sounding names were 10% more likely to receive a callback than applications listing Muslim-sounding names. The specific reasons for the disparity in this study are unclear; however, examination in conjunction with other studies provides some additional clues as to what may be causing callback disparities when they do occur. Assumptions or inferences about lifestyle and/or ideology are likely to play a role, and potentially only for certain groups. A 2020 study across 4,000 U.S. employers examined callback rates between Muslim and Christians candidates, and gay and straight candidates. No disparities in callback rates were found between gay and straight

candidates. Christian candidates did receive a higher callback rate than Muslim candidates, but only in areas that tended to hold Republican political views (17.3% vs 2.3%, respectively). This disparity was not seen in areas that tend to hold Democrat political views (11.6% vs 11.7%, respectively; Acquisti & Fong, 2020).

Quillian et al. (2017) also examined callback rates but did so over time in an effort to determine any changes in hiring discrimination throughout almost three decades. These authors included studies as far back as 1989 and found that white applicants received on average 36% more callbacks than black applicants, and 24% more callbacks than Hispanic applicants. For black applicants, the authors observed no significant change in the disparity of callback rates as compared to white applicants and thus concluded that the level of discrimination has remained the same throughout the years (1989 to 2017). The authors noted that the disparity in callback rates between Hispanic and white applicants over this time period did become (numerically, but not statistically significantly) smaller, However, they also pointed out that there was a general deficit of callback studies including Hispanic applicants (n = 9) and thus did not have the power to determine whether the decrease in the disparity of callback rates between Hispanic and white applicants over this time period did in fact reflect a true underlying difference. Accounting for applicant education and gender as well as the effects of local market conditions did little to alter their findings regarding both black and Hispanic applicants.

Studies that examine changes in hiring discrimination over time add important context to the discussion around racial bias in hiring. They allow us to determine how discriminatory attitudes are changing over time and identify areas in which progress is being made. While SNSs are still relatively young, and their application as hiring tools

even more so, examining racial bias in hiring at this early stage will lay the groundwork for studies that span years or decades, providing much depth and context to the study of racial bias in hiring and its prevalence and presentation over time.

Hamner et al. (1974) found that gender-race stereotypes influenced performance assessments on tasks even when objective measures were clearly defined. However, this study took into account not only the genders and races of the "ratees," but also the genders and races of the "raters" (who were told in this study to consider themselves potential employers). The authors found that black raters gave higher performance scores to black ratees compared to white ratees, and white raters gave higher performance scores to white ratees compared to black ratees. The results suggest that implicit discrimination does play a role in the workplace and within the context of employer-employee relationship, and that this discrimination does not only act in one direction — that is, a member of a majority group discriminating against a member of a minority group. The authors concluded that implicit discrimination could occur by way of a member of a minority group discriminating against a member of a majority group as well. Given these findings of evidence of hiring discrimination by employers in more traditional recruitment, screening, and selection contexts, it may be the case that employers discriminate against races other than their own in newer contexts as well, such as SNS.

Causes of Implicit Discrimination

Past research has addressed the notion that discrimination may be unintentional and that discriminators are unaware of their actions (Bertrand et al., 2005). Indeed, evidence has been found in support of the claim that employers who do not explicitly advocate for or engage in discriminatory practices can still favor members of their own

racial groups when making employment decisions (Neumark, 1988). Bertrand et al. (2005) offer some insight as to why this might be and suggest that controllable behaviors may be influenced more greatly by implicit attitudes when individuals feel as though they have less control over the situation. With this in mind, it may be the case that employers simply engage in implicit discrimination when they feel as though they do not have much say in the final hiring decision, an environmental influence that organizations might do well to address in order to maintain fairness in hiring decisions. The authors also posit that time pressure and stress are two factors that increase the chances of behavior being influenced by a person's implicit attitude. They describe a two-step process where time pressure and stress first accelerate an individual's mental processes; then, in an attempt to reduce the cognitive load, people attempt to lessen the amount of information that needs processing and fall back on their implicit attitudes rather than accurately assess all available information. If employers have many applicants to screen with little time available, they may unintentionally focus on those applicants that represent their own racial group. Time pressure and stress can be considered environmental factors, but individual characteristics are likely to determine the degree to which these factors influence a person's behavior (Schmidt & Ford, 2003). Said another way, different people have different tolerances for time pressure and stress.

Ambiguity, another characteristic of an environment or job, may also cause seemingly controllable behaviors to be affected by an individual's implicit attitudes, as seen in the following studies. Researchers in the field of social psychology have found that when multiple courses of action and explanations for behavior exist – that is, when the proper course of action or explanation for another's action is not readily apparent -

implicit attitudes are more likely to influence an individual's choice of behavior or interpretation of another's behavior (Bertrand & Mullainathan, 2004). Also speaking to the effect of ambiguity on decision-making, Darity and Mason (1998) posit that the lack of available information may cause an employer to focus on group membership as a possible factor in determining the employability of an applicant. It may be that when employers cannot obtain as much information about an applicant as they would like, they feel the need to latch onto something in order to make a decision.

CHAPTER 2

UTILIZING SOCIAL NETWORKING SITES FOR RECRUITMENT, SCREENING, AND SELECTION

Social Networking Sites Explained

If employers do indeed make employment decisions based on superficial characteristics of applicants such as race (Bertrand and Mullainathan, 2004; Carlsson and Rooth, 2007; Quillian et al., 2019; Quillian et al., 2017) then the use of SNSs as tools for applicants to search for jobs and for employers to hire is an area where problems may arise. SNSs are large, Internet-based communities, many of which have surged in popularity over the past decade and especially in the last five years (Duggan et al., 2015; Dwyer et al., 2007). When joining most SNSs, an individual user typically begins by making a personal profile. This profile usually consists of basic demographic information. After creating a profile, individuals then connect with other users on the network. These connections then brand the now-connected individuals as "friends," or on some sites, "colleagues" (Dwyer et al., 2007). SNSs have a number of different functions; they often allow users to share pictures and information about themselves, as well as talk to and play games with other users. Users can update their "friends" on their recent or current activities and whereabouts, and users can choose to keep this information private — to be viewed by "friends" only, or to be viewed by anyone with access to that SNS — able to be viewed by any user who comes across that user's profile (Dwyer et al., 2007).

While some SNSs are more "general" in terms of their structure, simply providing a place in which users share information about themselves and tend to communicate about any topic that they wish, some have more specific purposes. These include facilitating romantic relationships, serving as a communication hub for schools and/or large workplaces, providing a means for recruiters to screen and contact potential employees, or serving as tools for job applicants to create profiles and applications to submit to prospective employers (Davison et al., 2012).

History of SNS in Screening, Recruitment, and Selection

The primary goal of this study is to shed light on the potential for racial discrimination during the applicant-screening-and-review process on SNSs. As such, it is important to understand the history of and efficacy of utilizing SNSs for screening, recruiting, or hiring purposes. Research has found that HR professionals and organizations have much to gain from the utilization of SNSs. These sites allow organizations to build an online brand and increase applicant attraction leading to more positive hiring outcomes (Dutta, 2014). HR professionals and the organizations to which they belong have indicated that they use SNSs to acquire information about job applicants that they believe cannot be gleaned from other sources (Davison et al., 2012). Assessing the personality of a job applicant is considered one of the primary uses of SNSs as tools for pre-screening, and through SNSs managers and HR professionals feel that they can obtain a better picture of who the applicant really is (Davison et al., 2011; Davison et al., 2012). Research has supported the notion that aspects of applicants' personalities can indeed be inferred by the analysis of their personal social network pages. Viewers can differentiate between individuals who are high and low on

conscientiousness, extroversion, agreeableness, and/or neuroticism simply by reviewing individuals' personal social network pages (Kluemper & Rosen, 2009). Considering that personal web pages have been found to convey personality, along with other findings indicating that insight into an individual's personality can help managers and HR professionals determine an applicant's person-organization fit (P-O fit; Davison et al., 2012), it is no wonder that SNSs have received an increasing amount of attention over the last decade as a means of recruitment, screening, and placement in organizations (Alexander et al., 2019; Broughton et al., 2013; Goodmon et al., 2014). Finding the right employees for open positions often results in a lengthy recruiting process, and it may be the case that determining P-O fit and pre-screening through SNSs can expedite the process (Davison et al. 2012).

Of course, another driver for the adoption of SNSs by employers for hiring purposes is cost. It stands to reason that organizations will be much more amenable to shifting towards SNS hiring if that shift is met with a reduction in hiring costs. Recent research has indeed found that hiring through SNS does indeed reduce costs. Studies on cost per hired applicant when using more traditional methods have estimated between $3,000 and $4,000 dollars, with "web-based" recruiting cutting this cost to roughly $377 (Broughten et al., 2013; Phillips-Wren et al., 2016). Organizations that are interested in hiring internationally seem to benefit even more from this reduction in cost, as transportation, lodging, meals, and other applicant-related expenses are cut significantly when the recruitment and screening process can mostly be done through SNSs (Chapman & Webster, 2003). The ability to post a job vacancy online, whether it be essentially for free on many SMSs or for a small fee on sites geared more specifically towards

recruitment, has proven to be extremely attractive to employers due to the reduction in cost (Melanthiou et al., 2016).

LinkedIn

Of the many SNSs that can be utilized for hiring purposes, LinkedIn stands out from other current SNSs when it comes to the communication and exchange of information between managers/HR professionals and job applicants. Many managers and HR professionals have stated that they have hired employees by leveraging LinkedIn and its many features (Alexander et al., 2019; CareerArc, 2021; Davison et al., 2011; Davison et al., 2012; Skeels & Grudin, 2009). On the applicant side, LinkedIn is used mostly among young professionals aged 25-35 whose social network is expanding. These individuals view LinkedIn as a way to make a clean, attractive, inexpensive, and easily constructed résumé available and accessible to potential employers at all times (Skeels & Grudin, 2009).

On LinkedIn, users create a profile that lists their name, contact information, approximate area of residence, and oftentimes a picture. However, the key difference between LinkedIn and other SNSs is the presence of professional information, or information that would likely be found on a hard copy of a résumé or job application. Users of LinkedIn list their professional skills, employment history, career aspirations, references, and, instead of making connections with “friends,” connections are made with professional colleagues or professional acquaintances. Absent from LinkedIn is information about an individual’s hobbies, political or religious affiliations, and most other personal, non-work-related information. A prominent component of the LinkedIn profile is the user’s picture. Pictures of users within individual profiles of most SNSs are

typically used for fun, to facilitate social interaction, or to gauge sexual attraction. However, the pictures of users — specifically, job applicants on LinkedIn — serve a much more impactful role. These pictures are being viewed by employers, recruiters, or potential work colleagues, and thus may play a role in the likelihood of a job-seeker to obtain employment. This brings us to the current study, which sought to determine the extent to which employers engage in racial discrimination when viewing applicants' LinkedIn profiles.

CHAPTER 3

METHOD

Purpose and Hypotheses

The purpose of this study was to determine the extent to which racial discrimination occurs (if at all) when employers use social networking sites (SNSs) to aid in their hiring processes.

Hypotheses

When all other applicant attributes are held constant, a match between the applicant's race or ethnicity and a rater's (study participant's) race or ethnicity will result in more favorable ratings of employability on all three dimensions: qualification (H1a), hireability (H1b), and starting salary (H1c).

Participants

A power analysis determined the sample size needed to test the hypotheses. With one independent variable containing two levels (same or different race between reviewer and applicant), three dependent variables (qualification, hireability, starting salary), type 1 error set at .05, power set at 0.8, and an effect size set at 0.1, the required sample is n=114. An effect size of 0.1 was determined a reasonable target after reviewing related studies exploring similar research areas, for which significant effect sizes typically fell

between 0.08 and 0.3 (Acquisiti & Fong, 2020; Hamner et. al., 1974; Quillian et. al., 2017). Conceptualizing the independent variable as two levels: race match or mismatch between applicant and rater, was deemed appropriate based on findings from Hamner et al. (1974), who found that implicit discrimination during the screening and hiring process does not only occur in one direction, and that members of a racial minority group can indeed discriminate against members of a majority group.

A participant pool of 409 signed up voluntarily on Amazon Mechanical Turk (MTurk). All were located within the United States. MTurk is a crowdsourcing tool to recruit participants for tasks including surveys and other research studies. It allows researchers to collect data more quickly and at a lower cost than more traditional methods that might require in-person identification and recruitment of hundreds, potentially thousands of study participants. MTurk study samples have been found to replicate a variety of experimental and observational results (Clifford et al., 2015; Mullinix et al., 2015). These samples tend to produce high quality data when individuals are selected based on their approval rate. A high overall approval rate, determined by feedback from other MTurk study owners, indicates that a participant consistently follows the directions of the studies in which they participate and subsequently submits high quality data (Peer et al., 2014). Participants in the current study were limited to MTurk "Master Workers," which is a status granted by the MTurk platform administrators at Amazon.com, assigned to those who submit high quality data (high approval rate), have sufficient tenure in the MTurk marketplace, and have completed a sufficient variety of MTurk tasks. The status is granted automatically once requirements set by Amazon's proprietary algorithm are met.

MTurk participant samples typically provide higher quality data than student samples, samples derived from communities in a single particular area, and have even been found to be of higher quality than some national samples collected by national corporations or government agencies (Anson, 2018; Mullinix et al., 2015; Thomas & Clifford, 2017).

However, collecting data through MTurk is not without its risks. For example, a number of 2018 studies examining reports of declining MTurk data quality revealed that individuals outside of the USA were employing virtual private networks (VPNs) to participate in USA-only studies, often providing random and/or nonsensical responses (Ahler et al., 2018; Dennis et al., 2018). While there is no evidence to suggest that international participants provide lower quality data simply because of their location outside of the USA, it follows that individuals who take steps to deceive researchers may also tend to take the directions of the study less seriously, and provide lower-effort responses. As mentioned above, all participants held Master Worker status which decreases the likelihood of collecting non-serious or low-effort responses. Additionally, extreme responses were sought out during outlier removal; none were deemed extreme enough to be removed.

Measures

Demographic Information

Demographic information allowed for the evaluation of previous hiring experience to ensure that all raters had engaged in hiring before, and to collect the raters' race/ethnicity so that they could be appropriately coded as matching or not matching the applicant's race.

Three metrics were chosen as measures of applicant quality: qualification, hireability, and starting salary. These were deemed the best measures with which to evaluate applicant quality as they align with what we expect to be the primary decision points that recruitment and selection personnel encounter during the screening and selection process (i.e., applicant qualifications, decision to hire, and starting salary).

Qualification

Participants (raters) were asked to rate the job applicants in terms qualification for the open position. *"How qualified is Taylor Davis (applicant) for the position? Provide a rating on a scale of 1-10 with 1 meaning extremely unqualified and 10 meaning extremely qualified."*

Hireability

Participants (raters) were asked to indicate the likelihood that they would hire the job applicant for the open position. *"Imagine that you are the hiring manager in charge of filling the open position. How likely are you to hire Taylor Davis? Provide an answer on a scale of 1-10 with 1 meaning extremely unlikely and 10 meaning extremely likely."*

Starting Salary

Participants (raters) were asked to suggest a starting salary for the job applicant if they were to be hired. *"If Taylor Davis were to be hired for the open position (by you or someone else), what would you suggest as a starting salary?"* (range $50,000 to $100,000, in increments of $5,000).

While there is an ongoing debate in the social science measurement community regarding the use of fixed-range rating scales and the properties of the resulting data (Jamieson, 2004), namely whether they can be considered interval as opposed to ordinal,

this study will treat the data as interval. Wu and Leung (2017) examined different ranges of Likert-style scaling and their ability to adhere to underlying distributions of simulated data. The researchers compared both normal and skewed continuous variable distributions to these different ranges of Likert scaling in an attempt to mimic the continuous distributions in the underlying data. Increasing the number of fixed-scale points better approximated the underlying continuous distributions, with the researchers recommending an 11-point scale rather than the more typical four to seven points.

Materials

LinkedIn Profile

All participants (raters) were provided with the same LinkedIn profile (Figures 1, 2, and 3) which included name, location, previous and current employer, employment history, educational history, skills, and expertise.

Figure 1: LinkedIn Profile

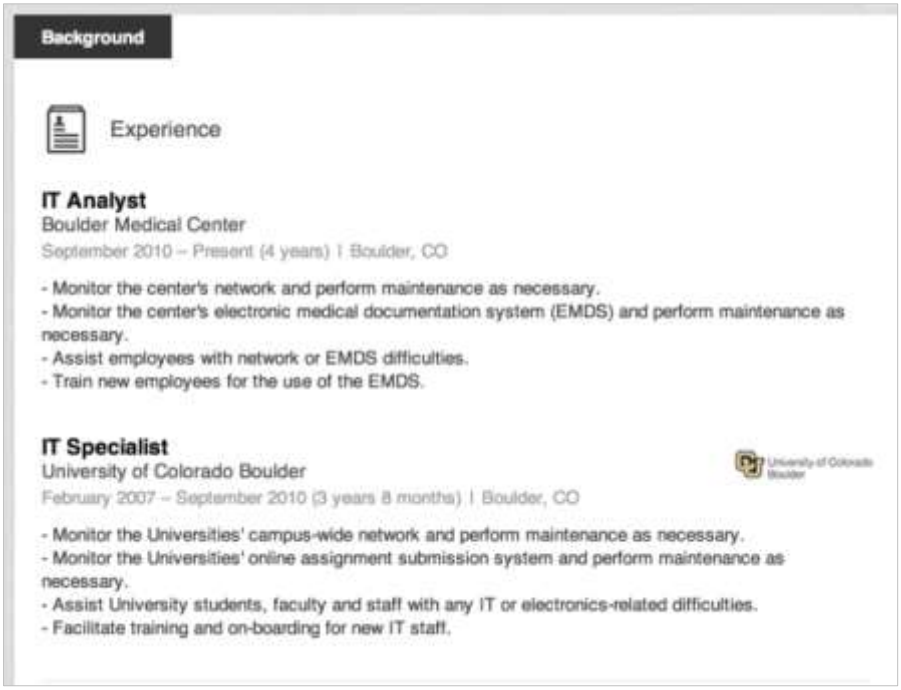


Figure 2: LinkedIn Experience

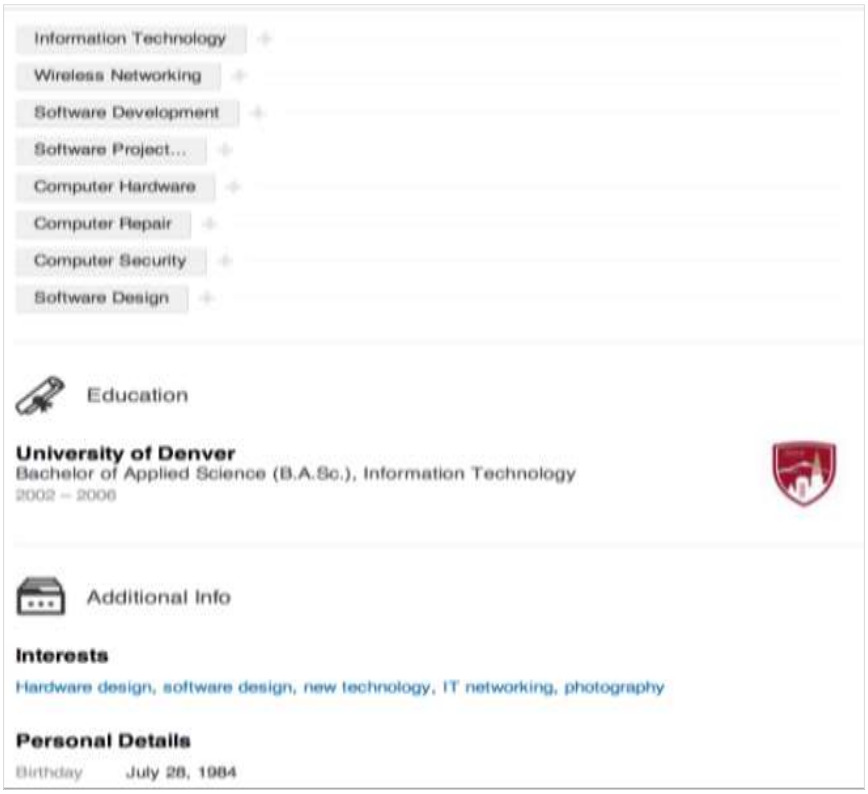


Figure 3: LinkedIn Skills and Endorsements

Applicant Profile Pictures

All participants were randomly assigned to review a LinkedIn profile attached to one of three applicant pictures (Figure 4). The applicant pictures presented the same individual with three different skin tones representing three different racial/ethnic groups: white, black, and Hispanic. The individual's skin tone was altered using photo-editing software to ensure that this was truly the only difference between profiles.

White

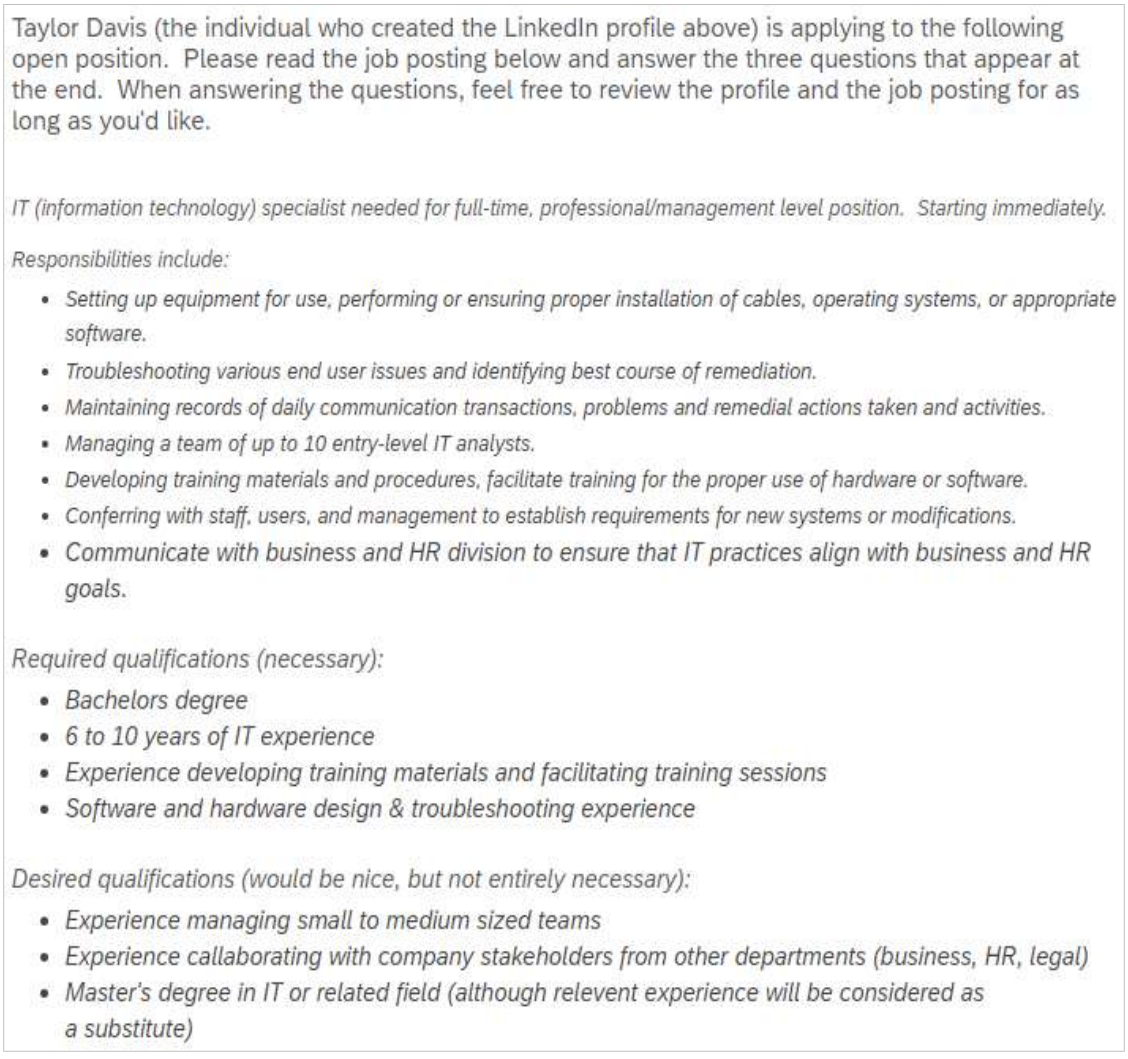
Hispanic

Black

Figure 4: Applicant Profile Pictures

Fictitious Job Posting

Participants were given access to a fictitious job posting outlining a specific position within an organization (Figure 5). This job posting was used as a reference for the assignment of qualification ratings, ratings that represent the participants' likelihood to hire the individual featured in the profile, and the starting salary that participants would recommend for the applicant if hired. An identical job posting was provided to all participants in the study.



Taylor Davis (the individual who created the LinkedIn profile above) is applying to the following open position. Please read the job posting below and answer the three questions that appear at the end. When answering the questions, feel free to review the profile and the job posting for as long as you'd like.

IT (information technology) specialist needed for full-time, professional/management level position. Starting immediately.

Responsibilities include:

- *Setting up equipment for use, performing or ensuring proper installation of cables, operating systems, or appropriate software.*
- *Troubleshooting various end user issues and identifying best course of remediation.*
- *Maintaining records of daily communication transactions, problems and remedial actions taken and activities.*
- *Managing a team of up to 10 entry-level IT analysts.*
- *Developing training materials and procedures, facilitate training for the proper use of hardware or software.*
- *Conferring with staff, users, and management to establish requirements for new systems or modifications.*
- *Communicate with business and HR division to ensure that IT practices align with business and HR goals.*

Required qualifications (necessary):

- *Bachelors degree*
- *6 to 10 years of IT experience*
- *Experience developing training materials and facilitating training sessions*
- *Software and hardware design & troubleshooting experience*

Desired qualifications (would be nice, but not entirely necessary):

- *Experience managing small to medium sized teams*
- *Experience callaborating with company stakeholders from other departments (business, HR, legal)*
- *Master's degree in IT or related field (although relevent experience will be considered as a substitute)*

Figure 5: Fictitious Job Posting

Procedure

After selection on MTurk, participants were provided with a link to a survey containing all measures and materials listed above. First, participants provided demographic information indicating their experience level in selection or hiring and the racial/ethnic group with which they identify. Next, participants were randomly assigned to one of three groups, each viewing the same LinkedIn profile and fictitious job posting, but viewing only one of three applicant pictures; either white, black, or Hispanic. Then, participants were asked to evaluate the applicant in relation to the job posting, providing a rating from 1-10 regarding the qualification of the applicant, a rating from 1-10 regarding the likelihood to hire the applicant, and a recommend starting salary for the applicant from a range of $50,000 to $100,000.

CHAPTER 4

RESULTS

Data Cleaning

Participants who indicated that they 'have no experience selecting and hiring new employees' were removed, reducing the usable sample from 409 to 299.Next, participants who identified themselves as other than white, black, or Hispanic, or who viewed an applicant profile that contained no applicant picture, were removed. Because the three different experimental conditions included in this study contain only white, black, or Hispanic applicant pictures, respondents who identified as anything other than these races did not have the possibility of being matched with a profile picture that reflected their own race, and thus it was determined that removal was the best option. Additionally, at the time of original data collection, a *no-picture* application was included as an additional group to be examined in an ANOVA and compared to ratings of white, black, and Hispanic applicants. Individuals who viewed this *no-picture* condition were removed for similar reasons; without an applicant picture, race match or mismatch cannot be determined, and thus removal was deemed to be the best option for the current analysis. This brought the total to 195. Additional participants were removed due to insufficient time spent in the survey, indicative of non-thoughtful responses. Considering the brevity of the survey, two minutes was judged to be an appropriate minimum to be included in analysis. This brought the total to 153. Of these participants, 130 identified as white, 10

identified as black, and 13 identified as Hispanic. Forty nine participants viewed a LinkedIn profile that contained a picture reflecting their own race, while 104 viewed a LinkedIn profile that did not reflect their own race.

Please recall that it is this distinction between *viewed same race as self* and *viewed different race as self* that specify the two independent variable groups, *not* the specific races of the raters themselves (i.e., white, black, Hispanic).

Testing Assumptions

Prior to testing the hypotheses, assumptions regarding outliers, normality, and multicollinearity were examined. Following recommendations by Tabachnick & Fidell (2007), regression analysis was used to uncover possible outliers. The three dependent variables, qualification rating, likelihood to hire rating, and starting salary, were entered as predictors to assess Mahalanobis distance. With three degrees of freedom (three dependent variables), any case with a Mahalanobis' distance value greater than 16.27 should be considered an outlier and removed from analysis (Tabachnick & Fidell, 2007). Across all cases, the highest Mahalanobis' distance value was 16.18, and thus no cases were removed from the analysis as outliers.

Normality was tested and evaluated for all three dependent variables using the Shapiro-Wilk statistic. Significant values for all three dependent variables indicated that all were non-normally distributed (Table 1). However, F-tests have been found to be robust against violations of the normality assumption provided there are no outliers, and type I error has been found to remain in an acceptable range (0.025 – 0.075 in the cited study) despite slight, moderate, and even severe departures from normality (Blanca et al., 2017).

Table 1

Salary and Employability Survey Components

Components	Shapiro-Wilk Statistic	*df*	*p*
How Qualified (1-10)	0.921	153	< .001
How likely to hire (1-10)	0.930	153	< .001
Salary in dollars (50k – 100k; 5k intervals)	0.943	153	< .001

Multicollinearity assumptions were tested by examining the bivariate correlations between all three dependent variables (Table 2). None of the correlations exceeded a value of r=0.9 indicating no instances of multicolinearity. Additionally, no correlations fell under r=0.2, indicating that the dependent variables are sufficiently correlated to be included together in a MANOVA (Tabachnick & Fidell, 2007).

Table 2

Bivariate Correlations Between Three Dependent Variables

Components	How Qualified	How likely to hire	Salary in dollars
How Qualified (1-10)	-	0.85*	0.23*
How likely to hire (1-10)	0.85*	-	0.24*
Salary in dollars (50k – 100k; 5k intervals)	0.23*	0.24*	-

*Significant at $p < .01$

Primary Analysis

A MANOVA was used to determine whether raters provided significantly higher scores on measures of qualification, likelihood to hire, and starting salary when viewing an applicant profile containing an applicant picture that reflected their own race

compared to raters who viewed an applicant picture that did not reflect their own race. The independent variable in this MANOVA was the match or non-match of the rater's race with the pictured applicant race (2 groups). The dependent variables were the ratings on the three components of the employability survey: qualification, likelihood to hire, and starting salary (three continuous variables).

Box's test of equality of covariance matrices was not significant (F = .684; df = 6; p = .663), meaning the covariances of the three dependent variables were equal across groups and thus the null hypothesis of equal covariances was not rejected.

Because distributions of the three dependent variables were found to be non-normal during initial assumption testing, Pillai's Trace was selected as the appropriate test statistic to determine significance (Tabachnick & Fidell, 2007). Pillai's Trace was not significant (F = 1.425; df = 3; p = .238), indicating that the race-match group did not receive significantly higher ratings of qualification, likelihood to hire, and starting salary than the race-non-match group, and thus all null hypotheses were not rejected (Table 3).

Table 3

MANOVA Descriptives

DV	IV Group	N	Mean	Std Dev
How Qualified?	Match	49	6.86	1.646
	Non-match	104	7.11	1.642
How likely to hire?	Match	49	6.59	2.217
	Non-match	104	6.77	2.209
Salary in dollars	Match	49	68,061	12,068
	Non-match	104	65,096	10,120

CHAPTER 5

DISCUSSION

Overview

The purpose of this study was to determine whether employers discriminate in regard to applicants who belong to certain racial groups other than their own when hiring on SNS. One hundred and four individuals viewed a LinkedIn profile containing a picture of an applicant whose race was different from their own, while 49 individuals viewed a LinkedIn profile containing a picture of an applicant whose race was the same as their own. A MANOVA was conducted to determine whether the group of raters who viewed a profile with an applicant picture that reflected their own race provided higher ratings in terms of the applicant's employability or starting salary.

Non-significant findings introduce the possibility that, contrary to evidence reported by prior researchers (Acquisti & Fong, 2020; Bertrand & Mullainathan, 2004; Carlsson and Rooth, 2007; Hamner et al., 1974; Quillian et al., 2017) , racial discrimination during hiring may not be occurring with the frequency or severity as previously thought, or may have declined in frequency or severity since those earlier studies were conducted.

One meta-analysis cited in this study examined racial bias from white individuals directed at black and Hispanic individuals over a period of just under three decades. The authors concluded that bias towards Hispanic individuals may be declining, evidenced by increasing rates of post-application callbacks for individuals with Latin-sounding names over time (Quillian et al., 2017). The lack of racial bias detected in the present study may suggest that racial bias in hiring may be declining for Hispanic individuals, and possibly for black individuals as well. It is also possible that racial bias is still present but may be producing a very weak effect on the measurement variables, too weak to detect with the current sample size. An a-priori power analysis that assumes a weaker effect would require a larger sample size to conduct the study, increasing our ability to detect racial bias that is less severe and produce a statistically significant result.

Implications

The potential for recruiters and hiring managers to discriminate during the hiring process is likely to be an important issue for many organizations as more and more begin to hire through SNSs, and others increase the amount of hiring in which they are already engaged through SNSs. Given the rising incidence of SNS hiring over the past couple of decades and the stated intentions by a majority of recruiters to increase their rate of SNS hiring (Alexander et al., 2019; Blacksmith & Poeppelman, 2014; Duggan et. al., 2015), it stands to reason that the amount of hiring done in the space will continue to increase. Recruiters and hiring managers would do well to stay current on findings related to discrimination when hiring on SNSs; not just because of its illegality or the moral failings with which most would say discrimination is associated, but also because the success of the organization may be greatly affected. Recruiters or hiring managers that allow

discriminatory attitudes to guide their thinking, whether consciously or subconsciously, are making secondary the attributes that are most likely to contribute to success — qualifications, accomplishments, experience, working style, and talent.

However, staying current on findings related to discrimination in hiring means keeping an open mind when conflicting results are found. This study found no evidence of discrimination by participants (raters, playing the role of hiring managers) when viewing applicants of a race other than their own. This is in conflict with many published studies that have examined and found evidence of racial discrimination in hiring, and thus an open-minded, broad look at findings that both support and reject the hypothesis that racial discrimination occurs in SNS hiring is warranted. Newer studies that support or reject the hiring discrimination hypothesis should be systematically integrated into the current body of research by way of meta-analyses, allowing us to observe a more complete picture of the phenomenon and how it may change over time. Additionally, as the body of research in this space grows, researchers may uncover certain aspects of SNSs that increase or decrease the likelihood of discrimination. For example, while no evidence of racial discrimination was found in this particular study which focused on LinkedIn, it may be that racial discrimination will be found on a different SNS, with the conflicting findings related to differing aspects of the SNS such as the demography of the user base, the inclusion or non-inclusion of pictures or other personal details that convey a user's race or ethnicity, or the primary purpose(s) of the SNS (i.e. recreational vs. professional). These aspects can be explored as moderators in future studies.

Another aspect of SNS hiring that deserves attention and consideration is the opportunity for passive job seeking by SNS members and how this might be evaluated for

adverse impact. While traditional guidelines for adverse impact take into account the ratios of applicants to hires for each race or ethnicity, recruitment through SNSs often targets passive job seekers. These job seekers have not necessarily applied to an open role within the recruiter's organization but have indicated publicly that they are open to being contacted about a new opportunity. In this scenario, there is no "applicant" and thus traditional guidelines for identifying potential adverse impact will be difficult to apply. Recruiters who reach out to passive job-seekers may need to consider the races or ethnicities of those to whom they reach out, and ensure they are contacting enough job-seekers from various racial or ethnic categories to ensure equal opportunity. It stands to reason that the ratios used to determine adverse impact would be based on the number of individuals of a certain race or ethnicity *contacted* by the recruiter divided by the number hired, rather than the number *applied* divided by the number hired. Additionally, in examining the cause of adverse impact and attempting to rectify the situation, one would not only look at the screening and evaluation process and tools. The initial communication and solicitation from the recruiter to the passive job-seeker(s) would also need to be examined, as this too could have a hand in producing adverse impact.

Limitations

One potential limitation of the study includes the positioning of the fictitious applicant and job posting in the IT space. Participants (raters) were not evaluated for their understanding of the IT space. Choosing participants who all have a similar level of IT experience and/or understanding of the field might increase the likelihood that variability in the ratings is due to racial bias, not due to participants' varying levels of understanding of the field, the potential job, and its responsibilities. Similarly, accounting for raters'

geographical location within the U.S.A. and the accompanying differences in average salaries may also help to increase the likelihood that variance in salary ratings are due to racial biases rather than differing expectations related to starting salary that are influenced by location.

Participants' experience using social media and SNSs in general could also point to an important limitation. Those less experienced with SNSs may have had a more difficult time navigating and understanding the fictitious applicant's profile, leading to an inaccurate assessment of the applicant's qualifications. Different levels of experience using SNSs and confidence in drawing conclusions or expectations from SNSs might affect the participants' evaluations of qualification, likelihood to hire, and deserved starting salary. While this study did assess participants based on their hiring experience (those with no experience were not included in the analysis), experience hiring through SNSs sites was not assessed. Future studies that use a similar methodology might screen participants based on their level of experience hiring specifically through SNSs or at least collect this information so it could be controlled for during analysis.

Another potential limitation is the "believability" of the edited photos that portrayed the fictitious applicant with varying skin tones. In the case of the edited photos — two were edited, one was unaltered — it is not known whether the participants (raters) truly believed that the skin tone they were looking at was natural. It is possible that participants who did not believe the skin tone was natural responded differently than those who did believe this was the case. For example, it is possible that the participants who did not believe the edited skin tone was natural took the study less seriously, and thus responded differently than they would have otherwise. Future studies that employ a

similar technique may do well to assess the "believability" of these altered images to help determine whether this factor had any influence on participants' responses.

Future Research and Conclusions

More research is certainly needed to evaluate the presence of racial bias in hiring. Future studies should aim to replicate the results of the current study, potentially adding to the evidence that racial discrimination in hiring may not be occurring in the present day. Comparisons between SNSs and more traditional hiring avenues should be explored as well. These studies should aim to determine whether the lack of racial bias in the present study points to declining racial bias, or if the results are related to the medium — that is, is it possible that employers who use SNSs for hiring purposes are less discriminatory than those who use more traditional avenues? Comparisons between SNSs could also yield informative findings. It may be the case that racial discrimination in hiring is more prevalent on some SNSs as compared to others due to, for example, the specific features the SNS creators choose to include, or the differences in viewpoints between different SNS user bases.

Despite the potential for discrimination and/or adverse impact, there is no denying the growth of SNS hiring and its utility in the selection space. It is the opinion of this researcher that, overall, companies would do well to at the very least explore SNS hiring practices if they have not done so already or consider increasing their efforts in this area. At the same time, it would be wise to stay up to date on current findings and best practices to determine if the benefits outweigh the potential risks — some of which are known now, but also others that are likely to be uncovered and identified in the future. The growth of the SNS hiring phenomenon cannot be ignored, and organizations that do

not entertain the idea of moving in this direction, at least to some degree, may find it very difficult to hire quality talent in the years to come.

REFERENCES

Acquisti, A., & Fong, C. (2020). An Experiment in Hiring Discrimination via Online Social Networks. *Management Science*, 66(3), 1005-1024.

Ahler, D., Roush, C., & Sood, G. (2018). The micro-task market for "lemons:" collecting data on Amazon's Mechanical Turk. Retrieved from: http://www.gsood.com/research/papers/turk.pdf

Alexander, E., Mader, D., & Mader, F. (2019). Using social media during the hiring process: A comparison between recruiters and job seekers. *Journal of Global Scholars of Marketing Science*, 29(1), 78-87.

Anson, I. (2018) Taking the time? Explaining effortful participation among low-cost online survey participants. *Research and Politics*, 1-8.

Bertrand, M., Chugh, D., & Mullainathan, S. (2005). Implicit discrimination. *The American Economic Review*, 95(2), 94-98.

Bertrand, M., & Mullainathan, S. (2004). Are Emily and Greg more employable than Lakisha and Jamal? *American Economic Review*, 94, 991-1013.

Blacksmith, N., & Poeppelman, T. (2014). Three Ways Social Media and Technology Have Changed Recruitment. *The Industrial Organizational Psychologist*, 52, 114-121.

Blanca, M. J., Alarcon, R., Arnau, J., Bono, R., & Bendayan, R. (2017). Non-normal data: Is ANOVA still a valid option? *Psicothema*, 29(4), 552-557.

Broughton, A., Foley, B., Lendermaier, S., & Cox, A. (2013). The use of social media in the recruitment process. *The institute of employment studies*, 1-81. Retrieved from https://www.employment-studies.co.uk/resource/research-paper-use-social-media-recruitment-process.

CareerArc (2021, January 21). Future of Recruiting Study Finds 76 Percent of Employers Predict Hiring Demand Will Near or Surpass Pre-Pandemic Levels in 2021. https://www.prnewswire.com/news-releases/future-of-recruiting-study-finds-76-percent-of-employers-predict-hiring-demand-will-near-or-surpass-pre-pandemic-levels-in-2021-301212295.html

Carlsson, M., & Rooth, D. O. (2007). Evidence of ethnic discrimination in the Swedish labor market using experimental data. *Labour Economics*, 14, 716-729.

Chapman, D. S., & Webster, J. (2003). The use of Technologies in the recruiting, screening, and selection processes for job candidates. *International Journal of Selection & Assessment*, 11(2/3), 113-120.

Clifford, S., Jewell, R., & Waggoner, P. (2015). Are samples drawn from Mechanical Turk valid for research on political ideology? *Research & Politics*, 1-9.

Darity, W. A., & Mason, P. L. (1998). Evidence on discrimination in employment: codes of color, codes of gender. *Journal of Economic Perspectives*, 12, 63-90.

Davison, K. H., Maraist, C., & Bing, M. N. (2011). Friend or foe? the promise and pitfalls of using social networking sites for hr decisions. *Journal of Business Psychology*, 26, 153-159.

Davison, K.H., Maraist, C. C., Hamilton, R. H., & Bing, M. N. (2012). To screen or not to screen? Using the internet for selection decisions. *Employee Responsibilities and Rights Journal*, 24, 1-21.

Duggan, M., Ellison, N.B., Lampe, C., Lenhart, A., and Madden, M. (2015). *Social Media Update 2014*. Pew Research Center.

Dennis, S., Goodson, B., & Pearson, C. (2018). Online Worker Fraud and Evolving Threats to the Integrity of MTurk Data: A Discussion of Virtual Private Servers and the Limitations of IP-Based Screening Procedures. *Behavioral Research in Accounting*, 32(1), 119-134.

Dutta, D. (2014). Tweet Your Tune—Social Media, the New Pied Piper in Talent Acquisition. *VIKALPA*, 39(3), 93.

Dwyer, C., Hiltz, S. R., & Passerini, K. (2007, August). Trust and Privacy Concern Within Social Networking Sites: A Comparison of Facebook and MySpace. *Americas Conference on Information Systems* (p. 339).

Goodmon, L. B., Smith, P. L., Ivancevich, D., & Lundberg, S. (2014). Actions speak louder than personality: effects of Facebook content on personality perceptions. *North American Journal of Psychology*, 16(1). 105-120.

Hamner, W. C., Kim, J. S., Baird, L., & Bigoness, W. J. (1974). Race and sex as determinants of ratings by potential employers in a simulated work-sampling task. *Journal of Applied Psychology*, 59(6), 705-711.

Jamieson, S. (2004). Likert scales: How to (ab)use them. *Medical Education*, 38, 121-123.

Kluemper, D. H., & Rosen, P. A. (2009). Future employment selection methods: evaluating social networking web sites. *Journal of Managerial Psychology*, 24(6), 567-580.

Melanthiou, Y., Pavlou, F., & Constantinou, E. (2015). The use of social network sites as an e-recruitment tool. *Journal of Transnational Management*, 20(1), 31-49.

Mullinix, K., Leeper, T., Druckman, J., & Freese, J. (2015). The generalizability of survey experiments. *Journal of Experimental Social Psychology*, 45, 867-872.

Neumark, D. (1988). Employers' discriminatory behavior and the estimation of wage discrimination. *Journal of Human Resources*, 23(3), 279-295.

Peer, E., Vosgerau, J., & Acquisiti, A. (2014). Reputation as a sufficient condition for data quality on Amazon Mechanical Turk. *Behavior Research Methods*, 46, 1023–1031

Phillips-Wren, G., Doran, R., & Merril, K. (2016). Creating a value proposition with a social media strategy for talent acquisition. *Journal of Decision Systems*, 25(1), 450-462.

Quillian, L., Heath, A., Pager, D., Midtboen, A. H., Fleischmann, F., & Hexel, O (2019). Do some countries discriminate more than others? Evidence from 97 field experiments of racial discrimination in hiring. *Sociological Science*, (6), 467-496.

Quillian, L., Pager, D., Hexel, O., & Midtboen (2017). Meta-analysis of field experiments shows no change in racial discrimination in hiring over time. *Proceedings of the National Academy of Sciences*, 114(41), 10870-10875.

Schmidt, A. M., & Ford, J. K. (2003). Learning within a learner control training environment: The interactive effects of goal orientation and metacognitive instruction on learning outcomes. *Personnel Psychology*, 56(2), 405-429.

SHRM Staffing Research. (2013). *Social Networking* Websites and Recruiting/Selection.

Skeels, M. M., & Grudin, J. (2009). When social networks cross boundaries: a case study of workplace use of Facebook and LinkedIn. *Proceedings of the Association for Computing Machinery 2009 international conference on supporting group work* (95-104).

Tabachnick, B.G., & Fidell, L.S. (2007). *Using Multivariate Statistics* (5th Ed.)

Thomas K., & Clifford, S. (2017). Validity and Mechanical Turk: an assessment of exclusion methods and interactive experiments. *Computers in Human Behavior*, 77, 184–197

Weiner, W. (2016). The influence of social media on job seekers in the digital age. *Career Planning and Adult Development Journal*, 32(3), 26-31.

Wu, H., & Leong, S. (2017). Can Likert scales be treated as interval scales? *Journal of Social Service Research*, 43(4), 527-53.