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## THE EFFECT OF MODE OF EDUCATION AND DEGREE LEVEL ON EMPLOYER PERCEPTIONS OF APPLICANTS' HIREABILITY

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ON EMPLOYER PERCEPTIONS OF APPLICANTS' HIREABILITY

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A Thesis  
Presented to the  
Faculty of  
California State University,  
San Bernardino

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science  
in  
Psychology:  
Industrial/Organizational

---

by  
Benjamin Nathaniel Safara

June 2017

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June 2017

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## ABSTRACT

Online education is becoming more prominent, but it has been found that employers are biased against hiring job applicants with online education. The influence of mode of education and degree level on employer perceptions of applicants' hireability was investigated. It was hypothesized that employer perceptions would decrease as the education of an applicant moved to a category consisting of more online education. It was hypothesized that employers would be less likely to move forward with applicants in the hiring process (viability) as applicants' education moved to a category consisting of more online education. It was hypothesized that degree level would moderate the relationship of mode of education on employer perceptions of applicants' hireability and viability. Although it was expected that perceptions of hireability would increase as the applicants' degree level increased and that perceptions would decrease as applicants' education moved to a category consisting of more online education, as mode of education moved from hybrid to online, employer perceptions of applicants' hireability were expected to decrease as applicants' college degree level advanced. Survey results were collected using Qualtrics Resume Screener service. Results showed employer biases against an applicant's hireability and viability exist as an applicants' education moved to a category consisting of more online education, but degree level did not change this relationship. Theories were applied to results to provide possible

explanations for the biases. The limitations of the current study as well as the theoretical and practical implications of the results are discussed.

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## CHAPTER ONE

### LITERATURE REVIEW

#### Employer Online Education Bias

Employers have tended to favor applicants with college degrees earned from traditionally instructed (i.e., face-to-face) programs. The preference has been enough to potentially impact hiring decisions. This is because degrees earned from online programs are often stigmatized as less credible, and the bias against them is used as a reflection of the degree holders' assumed lower job performance ability. Among industries, this has been found particularly in education (Adams & DeFleur, 2005; Adams, Lee, & Cortese, 2012; Connolly & Dippenbrock, 2011; DePriest & Absher, 2013; Flowers & Baltzer, 2006; Mustafa, 2012; Huss, 2007). Studies in other occupational fields, such as Healthcare and Engineering, have shown similar results (Adams, Defleur, & Heald, 2007; Adams & DeFleur, 2006). Findings in industries other than education though, are limited to a few studies at best. Overall, there is a paucity of research regarding the topic and additional research is needed to generalize findings to industries other than education. Many foci for research are likely to contribute to the body of extant literature on this topic. This study was not specific to one industry; instead, other factors that are likely to influence employer's perceptions across industries were considered. Specifically, the factors were the applicants' degree level and an additional level of the mode of education variable, hybrid. Doing so aimed to add value

both practically, by informing potential students as to what may affect their marketability post-graduation, and theoretically, by investigating other variables that contribute to an understanding of the source of employer's perceptions of potential job applicant's.

### Need for Education

Many Americans seek education beyond the high school level in hope of acquiring careers with comfortable pay to afford greater standards of living. Over the course of a lifetime's work, a college education is worth one million dollars more than a high school diploma (Carnevale, Strohl, & Melton, 2011). For positions which high school diplomas have been traditionally sufficient for meeting minimum education requirements, education beyond high school is increasingly required, particularly, in skilled labor and administrative positions (Society for Human Resource Management [SHRM], 2012). For positions that high education requirements have not been increasing, including minimum-wage jobs, competition between first-time job seekers and degree holders is becoming common, mainly since the economic downturn in the United States that began in 2007. Even further, employees may only be eligible for promotion if they extend their education by earning a degree. By 2020, it is projected that 65% of US jobs will require some form of postsecondary education and the US will have a deficit of 5 million workers with those credentials if postsecondary attainment rates do not increase substantially (Carnevale, Smith, Strohl, 2013). As a result, a high school education or less

is increasingly no longer sufficient for most high earning jobs . Earning a college degree is becoming necessary, simply to remain competitive for work (Bills, 2003).

Traditional colleges are receiving an increasing number of applications and they can only accommodate so many students. Although colleges are increasing their class sizes, they cannot keep up with the demand for enrollment. From 2001 to 2008, average annual increases in the median number of applications at public, four-year institutions increased about 6 percent a year, or 47 percent growth overall. The increase was 8 percent a year at private, not-for-profit institutions, for an overall 70 percent increase over this period (Hossler, Gross, & Beck, 2010). Between the Fall 2014 and Fall 2015 admission cycles, the number of applications from first-time freshmen increased 6 percent, applications from prospective transfer students increased by 4 percent, and international student applications increased by 23 percent, on average (Clinedinst, Koranteng, & Nicola, 2016). As a result, job seekers are looking for options other than traditional colleges to earn degrees in order to remain competitive for employment.

#### Online Medium Remedy

One solution to the supply and demand issues in higher education seemingly exists in online education, a type of distance learning. With exponential advancements in technology, educators with limited resources are turning to virtual education to deliver instruction to mass numbers of students

(Johnson, 2003). All types of institutions, including public, private non-profit, and private for-profit, are expanding their educational options to include online instruction. The larger the institution, the more likely it is that it will have a fully online degree program (Allen, Seaman, & Sloan, 2007). Among the top 100 universities as determined by U.S. News and World Report, nearly 75% offered one online degree program in 2014 and the larger the university, the faster online education has been growing (Center of Online Education [COE], 2017). Johnson (2003) stated that the flexibility of distance education is appealing for those that have full-time jobs, families, and therefore, limited discretionary time. Furthermore, Carnevale (2003) reported that online instruction can be much more efficient in terms of expenses. For example, simulated lab experiments save hard science majors money as mistakes do not ruin expensive materials or have serious repercussions when errors are made. Online instruction programs appear beneficial to multiple parties: efficient for educators; accommodating for students; and as will be discussed, lucrative and productive for investors. However, there are drawbacks to online classes as well.

### Student Concerns

There are notable concerns for the potential student pursuing online education. In comparison to government-funded colleges, many of the private, for-profit institutions that have been founded over the last few decades, which account for most of the online-based programs, charge exorbitant rates for

tuition. For example, in the 2014-2015 school year, the average tuition and fees for public, four-year institutions was \$18,632 and \$37,990 for private, nonprofit and for-profit, four-year institutions (U.S. Department of Education, 2016).

Despite the financial concern, the proportion of students taking at least one online course has increased from fewer than 1 in 10 in 2002, to nearly one-third by 2010, with the number of online students growing from 1.6 million to over 6.1 million over the same period – an 18.3 percent compound annual growth rate (Allen, Seaman, Babson Survey Research, & Inside Higher, 2012). The proportion of all students taking at least one online course reached an all-time high of 32%, totaling 6.7 million students in 2012 (Allen, Seaman, Babson Survey Research, & Inside Higher, 2013). With the influx of enrollees and the lack of selectivity of these programs, there is a stigma of lesser quality and a concern exists that potential employers hold the degrees in low regard (Linardopoulos, 2012).

Potential students may seek higher education for a variety of reasons such as fulfilling education requirements for careers, personal growth, or to learn a skill. For those pursuing advanced degrees, it is important to consider whether online coursework will be weighed tantamount to traditional coursework when evaluated by graduate admissions. The research concerning the perceptions of online education by graduate admissions officers is mixed. Three studies showed academic officers consider traditional

education superior to online education (Adams, 2009; Defleur & Adams, 2004; Mustafa, 2012), but three studies of academic admissions officers showed online education is perceived as equivalent to traditional education (Allen et al., 2007; 2010; Allen et al., 2012). Only the study by Mustafa (2012) found a bias to exist for employment outcomes of the students, too. Overall, these findings do not generalize to the faculty body of the institutions, nor employers. The present study focused on employer perceptions because it is their perceptions that matter in determining whether graduates are selected for employment. Potential college students then, should be highly concerned with employer perceptions when determining whether they should pursue higher education via online instruction. If employers are indeed negatively biased against online degrees to the extent that a decrease in opportunities for gainful employment follows, students who hold these degrees are likely to regard them as less valuable, and be less likely to enroll in such programs.

### Employer Selection Practices

In psychology, dual process theory posits that phenomena can occur because of two different processes: one, an automatic and unconscious process; and two, a controlled and conscious process (Marcum, 2012). Forming judgments and making decisions are explained by people's use of simple and efficient mental shortcuts, or heuristics. These cognitive shortcuts are manifestations of the controlled process variety and reduce intricate issues to simpler ones. Although heuristics can be rather useful, they can also lead to



notions removed from logic and rationalization. These flaws in thinking are known as cognitive biases.

Employer selection processes are designed with the intention of hiring the best applicants, those who will be top performers. Using mode of education as the basis for determining whether an applicant should be granted further consideration - that is, heuristically (viability) - may not be the soundest method for making these predictions, considering research demonstrated that learning outcomes are comparable for students learning online as in traditionally based courses (Allen et al., 2010). The equalizing factor is whether the online courses offer instruction from professors. Sitzmann, Kraiger, Stewart, and Wishner (2006) reported no differences in procedural and declarative knowledge from students participating in web-based versus classroom instruction. Bhatti, Jones, Richardson, Forneman, Lund, and Tierney (2011) found medical students participating in e-learning supplemented with a podcast, outperformed students engaging in a traditional lecture on a multiple-choice and matching questionnaire. A meta-analysis including 71,731 participants demonstrated that distance education students slightly outperformed students of traditional-based instruction in terms of course grades and exam scores (Allen et al., 2004). In the study, distance education denoted the physical absence of an instructor. If employers assume online education means students completed their coursework without the instruction, feedback, and participation of an instructor, they may be basing

their hiring decisions on incorrect information and want to investigate further as to whether instruction by professors was provided for the candidates' education.

It is likely that using mode of education to screen candidates will result in a higher rate of error, particularly, type I errors. A type I error would result when a traditional candidate is selected over an online candidate solely based on the mode of the candidates' education, and the traditional candidate performed lower than the online candidate. This can result the same in favor of the online candidate, where the online candidate is selected over a traditional candidate solely based on the mode of the candidates' education; though it is likely that the former scenario would occur more often, considering that research to date, substantiates employer bias for traditional degrees.

### Employer Perceptions

Employers have expressed specific concerns regarding degrees earned online. For example, Adams and Defleur (2006) noted employers were particularly worried about the level of in-person interaction experienced by online students. A more recent study by Adams in 2008 confirmed this concern and introduced the issue with the online, degree-granting campuses' reputation, as well as the lack of mentored learning experiences afforded to students. Thompson (2009) recognized some of these concerns such as presentation, team building, and communication, as soft or social skills that are vital in the workforce. Columbaro and Monaghan (2009) added employer

concerns with online programs' academic rigor, risk for cheating, and perceived lack of student commitment (i.e., unwillingness to be physically present on campus). Midlevel student affairs professionals placed a high value on experience and personal contact with faculty, peers, and administrators, throughout the educational experience. They did not consider these qualities available through online education (Connolly & Diepenbrock, 2011).

Again, employer reservations regarding online programs' academic rigor and reputation have been used heuristically. It has been inferred that these assumptions serve as a basis to judge students and predict their competence and performance as future employees. As far as employers are concerned, earning a degree online is a lower quality education than a degree earned traditionally and it is a reflection of the student's ability. They inferred that if hired, candidates with online degrees will be less competent and demonstrate inferior performance compared to those with traditional degrees.

A modest amount of research (11 studies) has been conducted purporting that employers do not perceive the degrees from online colleges as equivalent to degrees earned from in-person educational settings (Adams & DeFleur, 2005; Adams & DeFleur, 2006; Adams, Lee, & Cortese, 2012; Adams et al., 2007; Connolly & Diepenbrock, 2011; Deming et al., 2014; DePriest & Absher, 2013; Flowers & Baltzer, 2006; Mustafa, 2012; Huss, 2007; Rechlin & Kraiger, 2012). Instead, they preferred degrees earned traditionally. Adams, Lee, and Cortese (2012) yielded overwhelming evidence

for bias against online degrees. Further analysis of the survey data from 683 high school principals gathered from the Department of Education website for each of the 50 states, indicated that online degrees were perceived as not presenting sufficient opportunity for students to develop important social skills through interaction with other students and mentors. According to Thompson (2009), some employers only considered applicants with traditional degrees. However, Thompson indicated that differences favoring traditional education existed in industries where a college degree is often required for employment and in industries in which work activities require a high degree of expertise and training. She found that this is true in organizations that had a large percentage of employees with a Bachelor or graduate degree too. Specifically, online degrees were less accepted when the concentration was in Engineering or Business as compared to Recreation, Entertainment, and Hospitality. Deming et al. (2014) found employers favored candidates with a bachelor's degree from a public institution versus from a for-profit, online institution. The outcome variable was candidate's receiving calls from employers after submitting resumes to job openings. Though they did not definitively make the decision to hire the student with a traditional education over an online education, they also did not express interest in the student with the online education, essentially screening the candidate out of the selection process on the basis of the candidates' mode of education.

Linardopoulos (2012) wrote a qualitative review analyzing studies on the topic and concluded that there was a much greater likelihood that a candidate with an online degree would be viewed less favorably for employment compared to the candidate with a traditional degree. Mustafa (2012) identified similar results in academia among Arab nations, and Rechlin and Kraigers' (2012) results were consistent in the field of Industrial-Organizational psychology. In a study by Adams and Defleur (2006), participants came from many fields of study, ranging from social services and government, and news and entertainment, to research and consulting. Still, bias against online degrees was found.

After controlling for recommendations, publications, and course content, faculty candidates earning Doctoral degrees were found to be at a disadvantage when earning their degree online (Adams & DeFleur, 2005). This finding was consistent with research by Flowers and Baltzer (2006) and although it did not hold in a study by Guendoo (2008), participants in the study specified that they were receptive to hiring faculty with online degrees when the candidate had considerable teaching experience, publications, and demonstrated professional service. The study by Guendoo (2008) though, did not control for these ancillary variables on applicants' applications, which muddles the value of the results serving as opposing information to the phenomenon of employer bias against online education. Collectively, the

literature has focused on perceptions in a variety of industries, but has done little in the way of explaining the attributions.

A reasonable characteristic to begin investigating, are differences in the studies' participants. In Guendoos' (2008) study, the subjects of the study were restricted to community college administrators, which included deans, associate deans, chairpersons and associate chairs, directors of departments, college vice presidents, and senior faculty members serving on hiring committees at a community college. The attribution may be explained by the in-group bias, a cognitive bias in which there is a tendency for people to give preferential treatment to others they perceive to be members of their own groups (Taylor & Doria, 1981). Administrators may perceive those with online education favorably as they associate applicants with online education as belonging to a group their organization supports. If this is the case, community colleges are likely more open to online education as their school offers coursework to be completed online.

In the literature comparing perceptions between online and traditional modes of education, three of the eight studies (Allen et al., 2007; 2010; Allen et al., 2012) found online education was perceived as equal to or better than traditional education. Like the study by Guendoo (2008), these studies had administrators as subjects. As a result, the findings cannot be generalized to employer perceptions of applicants' degrees. Additionally, Allen, Seaman, Babson Survey Research, and Inside Higher (2012), and Allen, Seaman, and

Sloan (2007) noted that although administrators perceived online and traditional modes of education as equal, the faculty at the schools did not. Given the subjects were administrators, the results of these studies too, may be explained by the in-group bias. Two studies showed that the more online coursework that is offered at an institution, the more positive ratings were of learning outcomes (Allen et al., 2012; Allen et al., 2010). No differences in perception were found among subjects with varying degrees of online education experience in one study, (Adams, et al., 2007) but those with experience taking online courses were more likely to recommend a candidate with an online education for hire in one study (Adams et al., 2012) and faculty with direct online teaching experience in the study by Allen et al. (2010) were found to have the most positive views towards online education. Principals were more favorable towards students with online education when the principals' schools planned to offer credit for online courses. Mustafa (2012) demonstrated employer bias against online degrees, and most of the subjects were not taking online courses and did not study them.

While most departments offered online education for participants in the study by Flowers and Baltzer (2006), the number varied greatly, indicated by a large standard deviation. For those offering less coursework to be completed online, it is likely doing so reflects recent changes in the school's academic curriculum. Residual bias for online education may hold, and be in a process of adjusting to the idea that online is a suitable mode of education.

In addition to the in-group bias, negative employer perceptions of online education may be explained by the availability heuristic; a type of mental shortcut characterized by the tendency of people to overestimate the frequency of pairings (Chapman, 1967). This cognitive bias has been explained by the ease with which information comes to one's mind (Tversky & Kahneman, 1973). With all the negative media attention surrounding the epidemic of student debt in the United States and its association with high tuition rates - which are characteristic of many of the schools offering exclusively online degrees and programs - employers are likely to attribute online education with the negative stigma. Furthermore, if the general perception of online programs is negative, repeated exposure to this type of negative reference, and ultimately, perception by others, can serve to strengthen the poor image held by the perceiving individual. Whatever the source, employers' negative perceptions are likely reinforced and more easily retrievable as those negative perceptions reoccur.

Other cognitive biases serve as possible sources of employer attributions. In addition to administrators at schools, employees who exhibited positive perceptions of applicants with online education who are employed by companies that support online education (offering tuition reimbursement for online programs) and alternatively, employers who negatively perceive online education whose staff mostly hold traditional degrees as in the study by Thompson (2009), the similar-to-me bias may explain their attributions as a



form of self-presentation. Self-presentation is a process in social psychology whereby people attempt to control others' perceptions of them (Cialdini & Nicholas, 1989). By extension, this may motivate employers to exhibit biases against applicants completing education online as a way to preserve or maintain a positive reputation or image of their company. Maintaining similarity amongst employees by making hiring decisions based on the type of education of a candidate, promotes likability of the organization, and in turn, is an attempt at self-preservation.

Allen et al. (2007) noted that small, private four-year colleges have the most negative opinions about online education, as they are the least likely to offer online education. Not only might those making hiring decisions be motivated to preserve the reputation of their organization, but they may be influenced by self-interest as well. Cues such as witnessing preference for traditional hires, and hearing the opinions of those in superior positions within the organization, to curriculums offering online coursework within the organization offer information to an employee about their company's culture. Though their personal view may differ, they are likely to side with the collective position of their employer to promote their own likability. This illustrates a clear example of the bandwagon effect, characterized by the probability of individual adoption increasing with respect to the proportion that have already done so regardless of the underlying evidence (Colman, 2003). This tendency occurs because individuals prefer to conform and derive information from others.

Furthermore, social identity theory plays a role in their decision, which is based on an individual's membership or non-membership in a variety of social groups (Turner & Oaks, 1986). This theory posits that a person's action depends on which group membership is most salient at the time of their actions. In this case, their attribution of an applicant's hireability considering the applicant's mode of education may directly depend on their employers' general perception.

Certified public accounting firm recruiters did not differentiate mode of instruction when hiring candidates who earned Masters of accounting degrees (Metrejean & Noland, 2011). However, firms typically hire entry-level accountants based on their undergraduate coursework and usually do their own training. These points were recognized as limitations of the study that may explain the firms' indifference towards online Master's of accounting degrees in hiring decisions. Research by Tabatabaei and Gardiner (2012) did not support the notion that an information systems graduate's education mode was an important consideration to recruiters. They added that other factors such as work experience and academic performance were more salient and important to recruiters. Overall, they proposed that online education is evolving into a viable alternative to traditional education, with other factors dominating perceptions of attractiveness for information systems graduates. All of the subjects from the study were recruiters from one university that recently started offering online courses and did not offer online information systems

degrees. Online degrees may not be much of a concern in the field of information systems considering the high demand and low availability of qualified professionals as well as the nature of the degree (Burning Glass, 2014). It is reasonable to believe the negative stigma of online learning is tempered given the similarity between the field of information technology and the nature of online learning. Furthermore, recruiters may be more concerned with placing candidates and filling positions than they are with applicants' mode of education, as their job performance is typically evaluated based on their number of placements.

Proponents of online instruction suggest that students who attend college virtually demonstrate exceptional discipline because the increase in independence allows for less procrastination and commands strict adherence to schedules (Adams, 2008). Linardopoulos (2012) found student skills can temper the undermined credibility of online degrees. It is important that skills are highlighted in applications, résumés, and cover letters in order to stand out to employers when employers are reviewing the aforementioned materials. Additionally, advocates proposed that these students often work while attending school, which speaks in favor of their outstanding motivation, drive, and commitment (Columbaro & Monaghan, 2009). As mentioned, the flexibility afforded by online education is convenient for those with restricted time - such as working professionals, those with families, and caregivers – who are pursuing a postsecondary education. Employer's bias against online education

may be explained by the tendency to overestimate personality or dispositional-based explanations for behavior while undervaluing situational explanations, known as the fundamental attribution error (Ross, 1977). They may attribute students attending online schools to laziness and poor academic performance that prevented students to attend traditionally instructed schools. In turn, employers may use this attribution to predict job performance, instead of recognizing the obligatory circumstances in the student's life that resulted in online education being the most practical option to advance the students' education.

Columbaro and Monaghan (2009) also proposed employers may favor online degrees based on the accreditation of the institution. Thompson (2009) discovered too, that perceptions by employers are better for online degrees when they come from accredited institutions. This is an important consideration for students to note. In making their decision to attend either type of institution, students should be adept at determining if the degree programs under consideration, meet an employer's requirements for work. Many "diploma mills" offer degrees that are worthless in terms of the acceptability of the degrees by employers in fulfilling minimum requirements for employment opportunities (Ezell & Bear, 2005). Adams and DeFleur (2005) stated, "Although there are some 678 non-resident degree programs available online, only a handful of these are fully accredited or taught from recognized institutions" (p. 72). It is vital students are aware of the differences between

multiple types of accreditation and take into consideration that several accreditation agencies exist that are not approved by the Council for Higher Education Accreditation or the United States Department of Education. The absence of these accreditations could nullify the degrees granted by some colleges as far as employer perceptions of the degree's legitimacy is concerned.

The aforementioned studies however, posit reasons various employers may argue for online degree programs but are not conclusions corroborated by the studies. Still, considering these findings, people considering online education may find comfort in knowing that some employers view their education favorably and that taking certain precautions and steps may help improve employer's perceptions of their online degrees.

## The Present Study

### Hypothesis Formation

The present study considered two outcome variables regarding employer perceptions of applicants' hireability: one, whether the employer would hire the candidate; and two, whether the employer will advance the candidate in the selection process, or the candidates viability. This distinction is more thorough in capturing employer biases than considering only one of the outcomes. Most of the research to date has only accounted for the former variable. Employer biases may be substantial enough to hire the applicant. If they would not, this does not exclude the possibility of an existing bias.

Employers may not make a selection decision based on their bias, but the bias may be impactful enough that employers do not move the candidate forward in the selection process. Each of the following hypotheses was tested with both outcome variables to investigate whether this distinction is substantial. Of the research on employer perceptions of applicants' mode of education, only Deming et al. (2014) has investigated perceptions of the applicants' viability, which found bias for traditional degrees.

In order for a subject to make an informed decision regarding the hireability or viability of a job applicant, context of the position must be provided. As mentioned, instead of limiting the applicability of the studies' results to one or a few industries, the present study aimed to generalize the findings among any industry by allowing participants to be employed in any industry. The vacancy for which the applicant was being evaluated was an entry-level, Human Resources Analyst position. It required no experience to prevent subjects from considering experience as a factor in their attributions. Because the study concerned degrees earned online, a Bachelor's degree was listed as a requirement for the position. Finally, the type of position was chosen in order to maximize the relevance of the job classification to any industry. Due to the nature of the work, Human Resources positions offer broad applicability among organizations, sectors, and industries.

There is some support that although employers generally prefer traditional education, these perceptions of inequality are decreasing. Bailey

and Flegle (2012) recently found minimal, albeit statistically significant support, of managers hiring MBA students with online degrees, to indicate a positive shift in the acceptance of online degrees. As discussed, Metrejean and Noland (2011) and Tabatabaei and Gardiner (2012) found results contrary to much of the literature; that is, no bias against online education. Because this is only the beginning of the transition of employer perception, it was predicted that employers would still be biased in favor of traditional degrees.

In addition, DePriest and Absher (2013), and Adams, DeFleur, and Heald (2007) found online degrees are better accepted when more units towards one's degree are earned in a traditional face-to-face format. The finding was true when paralleled to the acceptability of online degrees as criteria for admissions to graduate programs (Defleur & Adams, 2004). Mode of education is not a dichotomous characteristic - either traditional or online. Rather, today's post-secondary degrees offer students the options to enroll in various delivery modes as captured by the mentioned studies. Using the 2005 Sloan Consortium report, Allen et al. (2007) placed academic programs into three categorizations; traditional, where most instruction is face-to-face permitting up to 29% web-based instruction; hybrid, where occasional instruction is delivered face-to-face and 30-79% of content is covered online; and online, where at least 80% course content is conducted online. Although several studies have shown preference for traditional degrees compared to online degrees, two showed a preference for degrees obtained from a hybrid

instructional method over degrees earned mostly online (DePriest & Absher, 2013; Adams, DeFleur, & Heald (2007). Although employer perceptions of applicants' degrees are in a period of transmutation, they have not yet reached equality among modes of education. It was expected that hybrid education will be viewed more favorably than mostly online.

*Hypothesis 1:* There will be a main effect for mode for education on employer perceptions of applicants' hireability. As education moves to a category with less traditional instruction, employer perception of applicants' hireability will decrease. Specifically, employers will perceive the hireability of applicants with hybrid and online degrees lower than the hireability of applicants with traditional degrees. Employers will perceive the hireability of applicants with online degrees lower than the hireability of applicants with hybrid degrees (See Appendix B).

With exception to the study by Deming et al. (2014), hireability has been the outcome captured in all of the research. That is, employers were asked if they would hire applicants. Because the research has not captured bias to a less extreme extent by asking if employers would move forward with the applicant in the selection process (regardless of the selection instrument used in the process such as phone interviews, written tests, or in-person interviews), accounting for this level of bias, which is coined viability in the present study, was posed as a research question. It was predicted that the



relationship would be the same as the effect of mode of education on employer perceptions of applicants' hireability.

*Hypothesis 2:* There will be a main effect for mode for education on employer perceptions of applicants' viability. As education moves to a category with less traditional instruction, employer perception of applicants' viability will decrease. Specifically, employers will perceive the viability of applicants with hybrid and online degrees lower than the viability of applicants with traditional degrees. Employers will perceive the viability of applicants with online degrees lower than the viability of applicants with hybrid degrees (See Appendix B).

Beyond industry, further examination reveals that collectively, the literature on the topic of employer perceptions of online education, accounts for other variables. Specifically, the literature accounted for varying levels of college degrees. Four of the five studies investigating degrees at the Doctorate level, found employers favor applicants with degrees earned traditionally (Adams & DeFleur, 2005; DePriest & Absher, 2013; Flowers & Baltzer, 2006; Rechlin & Kraiger, 2012). The findings are inconclusive for studies conducted at the Master's degree level; one was in favor for traditional education (Connolly & Diepenbrock, 2011) and two found employer perceptions were equal for online and traditional degrees (Bailey & Flegle, 2012; Metrejean & Noland, 2011). For studies in which degree level was unspecified, two studies favored traditional education (Adams & DeFleur,

2006; Adams et al., 2007; Mustafa, 2012) and one demonstrated no difference in employer perceptions between online and traditional degrees (Tabatabaei & Gardiner, 2012). Finally, two studies researching employer perceptions for online teaching credentials showed bias for traditional education (Adams et al., 2012; Huss, 2007).

Given the potential for added practical and theoretical value, the degree level of the applicant is one characteristic of applicant profiles that requires further research. Like ensuring a college program is accredited before enrolling in it and highlighting one's skills, a prospective college student can choose a program that offers the option to complete a specific number of units online depending on the level of degree they are earning. It is reasonable to believe that employers will have higher perceptions for applicants with greater levels of education. Increasing levels of education demonstrate greater mastery of a particular field of study. As degrees advance, the number of applicants holding them will decrease. According to the U.S. Census (2014), 31.96%, 11.77%, and 1.77% of those age 25 years and older hold Bachelor's, Master's, and Doctoral degrees, respectively. Again, education serves as a characteristic of an applicant to be more competitive in the job market. This notion may or may not hold given the mode of education of the degree holder. On one hand, an increasing level of education may serve to decrease or eliminate (moderate) the bias against online degrees because applicants with the degree are more rare. If employers do, they are choosing to resolve the

stress they feel from cognitive dissonance, or the mental discomfort experienced when they are presented with information inconsistent with their beliefs (Festinger, 1957). While they have a negative perception of online education, the level of the degree outweighs the mode of education in their perception of the candidates' hireability. This outcome would exhibit a case of accommodation, whereby employers internal model of online education perceptions is adjusted to justify their increasingly positive perception of degrees as they become more advanced (Piaget, 1952). On the other hand, because employers are biased against online education, negative perceptions of online education may increase as the level of the degree increases.

Employer bias against online education may be strengthened (mediated) as the degree under consideration is more advanced because they increasingly value in-person interaction as education advances. This outcome would model a case of assimilation, whereby employers' negative perceptions of online education are maintained and even strengthened. Assimilation results when information is incorporated to fit pre-existing internal models; in this case, employer's perceptions of applicants who completed their education online (Piaget, 1952). Employers are biased towards online education and their expectations for degrees are greater as degrees advance, so employers would perceive online education more negatively as the degree level increases.

Because four of the five studies demonstrated bias for traditional degrees at the Doctorate level, but are inconclusive for other levels, it was expected that

negative perceptions of education will decrease as the mode of education becomes completely online and the degree level advances, where Doctorate degrees are perceived more favorably than Master's at the traditional and hybrid levels of mode of education, respectively; and Master's degrees are perceived more favorably than Bachelor's degrees at the traditional and hybrid levels of mode of education, respectively, but the relationship will change as the mode of education becomes mostly online. Specifically, employer perceptions of applicants' hireability at the online mode of education level in descending order will be: online Bachelor's degrees, online Master's degrees, and online Doctorate degrees.

*Hypothesis 3:* There will be an interaction between mode of education and degree level on employer perceptions of applicant's hireability. Specifically, as mode of education moves from being hybrid to online, employer perceptions of applicants' hireability will decrease for more advanced degrees. Doctorate degrees will be perceived greater than Master's degrees at traditional and hybrid mode of education levels, respectively. Master's degrees will be perceived greater than Bachelor's degrees at traditional and hybrid mode of education levels, respectively. At the online mode of education level, employer perceptions of online education will be higher for less advanced degrees. Online Bachelor's degrees will be perceived higher than Master's degrees, and online Master's degrees will be perceived higher than online Doctorate degrees (See Appendix B).

Without literature to guide a prediction of the relationship of mode of education and degree level on employer perceptions of applicants' viability, it was explored as a research question. The expectation was - like the hireability outcome – that there would be an interaction between mode of education and degree level on employer perceptions of applicant's viability, though the effect will be less pronounced because considering an applicant as viable is less of an extreme consideration than the applicants' viability.

*Hypothesis 4:* There will be an interaction between mode of education and degree level on employer perceptions of applicants' viability. Specifically, as the mode of education moves from hybrid to online, employer perceptions of applicants' hireability will decrease for more advanced degrees. Doctorate degrees will be perceived greater than Master's degrees at traditional and hybrid mode of education levels, respectively. Master's degrees will be perceived greater than Bachelor's degrees at traditional and hybrid mode of education levels, respectively. At the online mode of education level, employer perceptions of online education will be higher for less advanced degrees. Online Bachelor's degrees will be perceived higher than Master's degrees, and online Master's degrees will be perceived higher than online Doctorate degrees (See Appendix B).

## CHAPTER TWO

### METHODS

#### Participants

A sample of 111 participants was obtained. Power analyses required 108 subjects to test all four hypotheses (Faul, Erdfelder, Lang, & Buchner, 2007).

Respondents were required to: be 18 years of age, have earned a Bachelor's degree, be currently employed, and be responsible for screening candidates in the hiring process for their employer. Screening included making decisions to move forward with candidates for hire such as inviting candidates to test and interview.

40.5% of respondents ( $N = 45$ ) were men and 58.6% ( $N = 65$ ) were women, while one participant did not disclose their gender. 64.87% ( $N = 72$ ) were White, 13.51% were Latino/Hispanic ( $N = 15$ ) and 10% or less self-reported as Black, Asian, or two or more races ( $N = 23$ ), while one participant did not disclose their ethnicity. 63.1% of respondents ( $N = 70$ ) highest level of education was a Bachelor's degree, and 26.1% ( $N = 29$ ) and 10.81% ( $N = 12$ ) of respondents highest level of education, was a Master's and Doctorate degree, respectively. Education, Information Technology, and Healthcare were among the most represented industries for employment, at 12.61% ( $N = 14$ ) for Education, and 11.7 % ( $N = 13$ ) for Information Technology and Healthcare, while 15.32% ( $N = 17$ ) of respondents selected other for their

industry of employment ( $N = 19$ ). One participant did not disclose his/her industry of employment. A complete list of demographic information is included in Table one.

Table 1. Demographic Variables

Categorical Variable		Qualtrics		Other		Total	
		N	%	N	%	N	%
Gender	Male	43	41.3	2	28.6	45	40.5
	Female	60	57.7	5	71.4	65	58.6
Ethnicity	White	68	65.4	4	3.6	72	64.9
	Black	9	8.1	1	1	10	9.0
	Latino/Hispanic	14	12.6	1	1	15	13.5
	Asian	10	9			10	9
	Two or more	2	1.8	1	1	3	2.7
Highest Education	Bachelors	66	59.5	4	3.6	70	63.1
	Masters	26	23.4	3	2.7	29	26.1
	Doctorate	12	12			12	10.8
Industry Employed	Construction	5	4.5			5	4.5
	Education	14	12.6			14	12.6
	Engineering	5	4.5			5	4.5
	Finance/Account	9	8.1	1	1	10	9
	Government	4	3.6	2	1.8	6	5.4
		13	11.7			13	11.7
	Hospitality	5	4.5			5	4.5
	Information Technology	13	11.7	1	1	14	12.6
	Manufacturing	5	4.5			5	4.5
	Media	2	1.8			2	1.8
	Real Estate	2	1.8			2	1.8
	Science	2	1.8			2	1.8
	Transportation	4	3.6			4	3.6
	Staffing Agency	3	2.7	1	1	4	3.6
	Other	17	15.3	2	1.8	19	17.1



## Measures

### Demographics

Participants were asked information about their Gender, Ethnicity, Highest level of education, and Industry of employment (See Table 1).

### Mode of Education

Mode of education is a categorical variable that consists of three levels as described by Allen et al. (2007): **traditional**, where most instruction is face-to-face permitting up to 29% web-based instruction; **hybrid**, where occasional instruction is delivered face-to-face and 30-79% of content is covered online; and **online**, where at least 80% course content is conducted online.

### Degree Level

Degree level was measured as a discrete, ordinal variable. It includes three increasing levels: Bachelor's, Master's, and Doctorate (PhD).

### Employer Perception of Applicants' Hireability

Employer perception of a candidate's hireability was measured with a 1-item scale (I would hire this applicant) on a 7-point Likert response scale (1 = strongly agree, 2 = somewhat agree, 3 = agree, 4 = neither agree nor disagree, 5 = disagree, 6 = somewhat disagree, 7 = strongly disagree).

### Employer Perception of Applicants' Viability

Employer perception of a candidate's viability was measured with a 1-item scale (I would invite this applicant for an interview) on a 7-point Likert response scale (1 = strongly agree, 2 = somewhat agree, 3 = agree, 4 =

neither agree nor disagree, 5 = disagree, 6 = somewhat disagree, 7 = strongly disagree).

A survey consisting of 9 applicant profiles was constructed (See Table 2). It included the questions of hireability, viability, and demographic questions.

Table 2. Applicant Profiles

Profile	Mode	Degree
1	Traditional	Bachelors
2	Hybrid	Bachelors
3	Online	Bachelors
4	Traditional	Masters
5	Hybrid	Masters
6	Online	Masters
7	Traditional	Doctorate
8	Hybrid	Doctorate
9	Online	Doctorate

### Procedure

Applicant profiles were randomized. Links to a survey via Qualtrics were advertised via a variety of platforms. The link was posted on the group ‘CSUSB MSIO Student and Alumni group’ and ‘SIOP’ on the website LinkedIn. A message was sent asking permission to send the link out to followers of the following Facebook pages: The American Statistical Association, Personnel Testing Council of Southern California, Personnel Testing Council of Northern California, SHRM SDSU, San Diego SHRM, California Psychological Association of Graduate Students and the Society for Industrial and

Organizational Psychology. One response was received from the American Statistical Association indicating that the survey would be sent out to a few people. E-mails were sent to researchers' contacts at staffing agencies in southern California. None were willing to extend the survey link to their staffs' recruiters via e-mail. Staffing agencies were visited to recruit participants based on their convenience of location. Approximately 15 firms were visited in-person, where three qualified subjects verbally agreed to participate after work hours. With these participant-recruiting strategies, 14 participants began the study between the day it was launched, August 4<sup>th</sup>, 2016, and August 12<sup>th</sup>, 2016.

Because of these poor return rates on the initial participant recruitment strategies, a payment was made to Qualtrics to recruit 99 qualified participants by the companies Resume Screener data collection service. A soft launch of the survey was completed on August 18<sup>th</sup>, 2016, to collect a sample of participants. Nine were collected. After review of the data and finding no quality issues, Qualtrics recruited a total of 104 participants (including 4 free of charge). While the survey was still live, 17 additional participants began the survey. The survey was closed on August 29<sup>th</sup>, 2016 after reaching 135 participants. A total of 24 participants provided unusable data, 16 of which were omitted as a result of completing the survey in less than one-third (2 minutes 24 seconds) the medium time (7 minutes 12 seconds). An additional 7 participants were omitted for not correctly answering the manipulation check,

Question 47, while one participant was omitted for not correctly answering the manipulation check, Question 48.

Ultimately, 111 participants' data was analyzed. Participants who provided a valid e-mail address were included in a lottery drawing for one \$100 gift card to Amazon.com. An informed consent statement was provided for participants to review before beginning the survey (See Appendix E). The survey took an average of 7 minutes and 15 seconds to complete. After completing the survey, results were available to participants on December 1, 2016.

## CHAPTER THREE

### RESULTS

All questions from the survey with the 7-point likert scale as response options were recoded so that higher values would indicate higher values of the given outcome variable. Initially, the coding was as follows: 1 = strongly agree, 2 = somewhat agree, 3 = agree, 4 = neither agree nor disagree, 5 = disagree, 6 = somewhat disagree, 7 = strongly disagree. The coding was reversed, as follows: 7 = strongly agree, 6 = somewhat agree, 5 = agree, 4 = neither agree nor disagree, 3 = disagree, 2 = somewhat disagree, 1 = strongly disagree.

Before the testing of hypotheses, screening was conducted to evaluate the completeness of responses, the presence of outliers and normality. The continuous variables for employer perceptions of candidate hireability (9) and viability (9) were examined for evidence of outliers and normality using histograms of the standardized distribution of responses and descriptive statistics. Nine of the eighteen variables were negatively skewed, and eight of the eighteen variables showed kurtosis (See Table 3). Using the 3.5 standard deviation units from the mean standard, ten of the variables had outliers (z-scores with an absolute value greater than or equal to +/- 3.5).

Table 3. Normality Tests

Variable	Original Variables				Log Transformed Variables			
	Skewness		Kurtosis		Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error	Statistic	Std. Error	Statistic	Std. Error
Q3 BT_HIRE	-0.45	0.23	0.14	0.46	-0.41	0.23	-0.99	0.46
Q4 BT_VIBL	-1.76*	0.23	5.94*	0.46	0.31	0.23	-0.75	0.46
Q6 BH_HIRE	-0.33	0.23	0.07	0.46	-0.62	0.23	-0.43	0.46
Q7 BH_VIBL	-1.42*	0.23	2.33*	0.46	0.06	0.23	-0.18	0.46
Q9 BO_HIRE	-0.27	0.23	0.28	0.46	-0.87	0.23	0.09	0.46
Q10 BO_VIBL	-1.04*	0.23	0.96	0.46	-0.16	0.23	-0.33	0.46
Q12 MT_HIRE	-0.57	0.23	-0.67	0.46	-0.02	0.23	-1.42*	0.46
Q13 MT_VIBL	-2.40*	0.23	8.29*	0.46	0.74	0.23	0.00	0.46
Q15 MH_HIRE	-0.24	0.23	-0.48	0.46	-0.64	0.23	-0.32	0.46
Q16 MH_VIBL	-1.49*	0.23	3.53*	0.46	-0.06	0.23	-0.12	0.46
Q18 MO_HIRE	-0.23	0.23	-0.32	0.46	-0.68	0.23	-0.43	0.46
Q19 MO_VIBL	-1.17*	0.23	1.38*	0.46	-0.06	0.23	-0.41	0.46
Q21 DT_HIRE	-0.89	0.23	0.09	0.46	0.27	0.23	-1.44*	0.46
Q22 DT_VIBL	-2.75*	0.23	9.73*	0.46	1.02*	0.23	0.67	0.46
Q24 DH_HIRE	-0.39	0.23	-0.46	0.46	-0.40	0.23	-0.96	0.46
Q25 DH_VIBL	-1.50*	0.23	2.98*	0.46	0.21	0.23	-0.72	0.46
Q27 DO_HIRE	-0.29	0.23	-0.35	0.46	-0.62	0.23	-0.50	0.46
Q28 DO_VIBL	-1.11*	0.23	1.03*	0.46	0.01	0.23	-0.82	0.46

\* Significant at greater than + 1 or lower than -1.

Note. B = Bachelor's; M = Master's; D = Doctorate; T = Traditional; H = Hybrid; O = Online; HIRE = Hireability; VIBL = Viability

To correct for the negative skew of the variables, scores were reverse coded and a log transformation was completed. Therefore, interpretation of the variable is reversed for analysis using the log-transformed variables. Big scores became small and small scores became big. One variable, employer perceptions of hireability for applicants with a Doctorate degree from a traditional mode of education, was still marginally skewed, and two still showed kurtosis.

Completing a log transformation, however, changes the hypothesis being tested and addresses a different construct to the one originally measured (Field, 2009; Grayson, 2004). Therefore, there is reason to believe that performing the transformation has unwarranted implications as the statistical gain is outweighed by changes that result in interpreting the data. Because the data are not normality distributed, the assumption of normality was not met for a factorial repeated-measures ANOVA. Instead, the non-parametric Friedman ANOVA was conducted to test the main effects of Hypothesis 1 and 2. There is always potential for a loss of power using non-parametric statistics (Field, 2009), though it is a better alternative than transforming the variables in this case. There is no non-parametric equivalent for the factorial ANOVA to test the interactions of Hypothesis 3 and 4. Factorial repeated-measures ANOVA's were completed separately using the original and log-transformed variables to test Hypotheses 3 and 4. Results were compared.

## Hypothesis Testing

The first and second hypotheses were tested using a Friedman's ANOVA. The third and fourth hypotheses were tested using a factorial repeated-measures ANOVA.

### Hypothesis 1

Hypothesis 1 predicted that there would be a main effect for mode of education on employer perception of applicants' hireability. As education moved to a category with more traditional instruction, employer perception of applicants' hireability would decrease. Specifically, employers would perceive the hireability of applicants with hybrid and online degrees lower than the hireability of applicants with traditional degrees. Employers would perceive the hireability of applicants with online degrees lower than the hireability of applicants with hybrid degrees. To test hypothesis 1, a Friedman's ANOVA was conducted (See Appendix C). Employer perception of applicants' hireability changed significantly among the three modes of education,  $\chi^2(2) = 61.61, p < .001$ . Wilcoxon tests were used to follow up this finding. A Bonferroni correction was applied and all effects are reported at a .0167 level of significance. Employer perceptions of hireability changed significantly from traditional to online,  $T = 94, p < .001, r = -.45$ , where traditional was higher than hybrid,  $T = 259, p < .001, r = -.34$ , and hybrid was higher than online,  $T = 417, p < .001, r = -.28$ . The r-values indicate between medium and large, medium, and slightly lower than medium effect sizes, respectively.



## Hypothesis 2

Hypothesis 2 predicted that there would be a main effect for mode for education on employer perception of applicants' viability. As education moved to a category with less traditional instruction, employer perception of applicants' viability would decrease. Specifically, employers would perceive the viability of applicants with hybrid and online degrees lower than the viability of applicants with traditional degrees. Employers would perceive the viability of applicants with online degrees lower than the viability of applicants with hybrid degrees. To test hypothesis 2, a Friedman's ANOVA was conducted (See Appendix C). Employer perception of applicants' viability changed significantly among the three modes of education,  $\chi^2(2) = 81.65, p < .001$ . Wilcoxon tests were used to follow up this finding. A Bonferroni correction was applied and all effects are reported at a .0167 level of significance. Employer perceptions of hireability changed significantly from traditional to online,  $T = 201, p < .001, r = -.51$ , where traditional was higher than hybrid,  $T = 282, p < .001, r = -.43$ , and hybrid was higher than online,  $T = 641, p < .001, r = -.29$ . The r-values indicate large, between medium and large, and medium effect sizes, respectively.

## Hypothesis 3

Hypothesis 3 predicted that there would be an interaction between mode of education and degree level on employer perceptions of applicant's hireability. Specifically, as the mode of education moves from being hybrid to online, employer perceptions of applicants' hireability would decrease for more

advanced degrees. Doctorate degrees would be perceived greater than Master's degrees at traditional and hybrid mode of education levels, respectively. Master's degrees would be perceived greater than Bachelor's degrees at traditional and hybrid mode of education levels, respectively. At the online mode of education level, employer perceptions of online education would be higher for less advanced degrees. Online Bachelor's degrees would be perceived higher than online Master's degrees, and online Master's degrees would be perceived higher than online Doctorate degrees.

To test hypothesis 3, a factorial repeated-measures ANOVA was conducted (See Appendix C). Mauchly's test indicated that the assumption of sphericity had been violated for the interaction of mode of education and degree on hireability,  $\chi^2(2) = 29.4$   $p < .05$ . Therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ( $\epsilon = .869$ ). There was no interaction effect between the mode of education and the degree level on hireability,  $F(3.475, 378.784) = 2.304$ ,  $p = .067$ ,  $r = .04$ . This indicated that mode of education did not have different effects on employer perceptions of applicants hireability depending on the degree level of the candidate. A log transformation was performed to correct the skewed data. Every variable was transformed so that scales were consistent when looking at differences between variables. Mauchly's test indicated that the assumption of sphericity was violated for the interaction of mode of education and degree on hireability,  $\chi^2(2) = 34.075$   $p < .05$ . Degrees of freedom were corrected

using Greenhouse-Geisser estimates of sphericity ( $\epsilon = .872$ ) and a significant interaction was found,  $F(3.49, 380.16) = 3.33, p < .05, r = .093$ . Exploring the data, contrasts were performed comparing all modes of education for both the transformed and untransformed data because as mentioned earlier, the log transformations change the hypotheses being tested.

For the non-transformed data (original variables), contrasts revealed no interaction when comparing traditional to online for Doctorate compared to Bachelor's,  $F(1, 109) = .342, p = .56, r = .06$ , Master's compared to Bachelor's  $F(1, 109) = .483, p = .489, r = .07$ , or Doctorate compared to Master's,  $F(1, 109) = 0, p = 1, r = 0$  (See Table 4).

Table 4. Repeated Measures Factorial ANOVA Contrasts of Original Variables on Hireability

Contrast	<i>F</i>	<i>df</i>	<i>p</i>	<i>r</i>
Traditional vs. Online				
Bachelor's vs. Doctorate	0.342	109	0.56	0.06
Bachelor's vs. Master's	0.483	109	0.49	0.07
Master's vs. Doctorate	0	109	1	0
Traditional vs. Hybrid				
Bachelor's vs. Doctorate	2.33	109	0.13	0.15
Bachelor's vs. Master's	11.99	109	0.001*	0.32
Master's vs. Doctorate	1.61	109	0.21	0.12
Hybrid vs. Online				
Bachelor's vs. Doctorate	1.18	109	0.28	0.1
Bachelor's vs. Master's	5.41	109	0.02*	0.22
Master's vs. Doctorate	0.163	109	0.16	0.13

\*Significant at the .05 level

A significant interaction was found when comparing traditional to hybrid for Master's compared to Bachelor's  $F(1, 109) = 11.996, p < .05, r = .315$ , but not for Doctorate compared to Bachelor's,  $F(1, 109) = 2.327, p = .13, r = .15$ , or for Doctorate compared to Master's,  $F(1, 109) = 1.61, p = .208, r = .125$ . The r-value for Master's vs. Bachelor's indicated a medium effect.

A significant interaction was found when comparing hybrid to online for Master's compared to Bachelor's,  $F(1, 109) = 5.41, p < .05, r = .217$ , but not for Doctorate compared to Bachelor's,  $F(1, 109) = 1.177, p = .28, r = .103$ , or Doctorate compared to Master's,  $F(1, 109) = 1.974, p = .163, r = .133$ . The r-value for Master's compared to Bachelor's indicated between a small and medium effect.

For the transformed data, there were no significant interactions when comparing traditional to online for Doctorate compared to Bachelor's,  $F(1, 109) = 3.46, p = .07, r = .18$ , Master's compared Bachelor's  $F(1, 109) = 1.43, p = .24, r = .11$ , or Doctorate compared to Master's,  $F(1, 109) = .487, p = .49, r = .07$  (See Table. 5).

Table 5. Repeated Measures Factorial ANOVA Contrasts of Log Transformed Variables on Hireability

Contrast	<i>F</i>	<i>df</i>	<i>p</i>	<i>r</i>
Traditional vs. Online				
Bachelor's vs. Doctorate	3.46	109	0.07	0.18
Bachelor's vs. Master's	1.43	109	0.24	0.11
Master's vs. Doctorate	0.487	109	0.49	0.07
Traditional vs. Hybrid				
Bachelor's vs. Doctorate	4.86	109	0.03*	0.21
Bachelor's vs. Master's	12.41	109	0.001*	0.32
Master's vs. Doctorate	0.754	109	0.39	0.08
Hybrid vs. Online				
Bachelor's vs. Doctorate	0.09	109	0.77	0.03
Bachelor's vs. Master's	4.3	109	0.04*	0.2
Master's vs. Doctorate	3.97	109	0.04*	0.19

\*Significant at the .05 level

A significant interaction was found when comparing traditional to hybrid for Doctorate compared to Bachelor's,  $F(1, 109) = 4.86, p < .05, r = .21$ , and Master's compared to Bachelor's  $F(1, 109) = 12.41, p < .001, r = .32$ , but not for Doctorate compared to Master's,  $F(1, 109) = .754, p = .387, r = .083$ . The *r*-values for the significant interactions indicated between small and medium, and medium effects, respectively.

When comparing hybrid to online, a significant interaction was found for Master's compared to Bachelor's,  $F(1, 109) = 4.3, p < .05, r = .195$ , and for Doctorate compared to Master's,  $F(1, 109) = 3.97, p < .05, r = .19$ , but not for Doctorate compared to Bachelor's,  $F(1, 109) = .09, p = .77, r = .03$ . The *r*-

values for the significant interactions both indicated between small and medium effect.

#### Hypothesis 4

Hypothesis 4 predicted that there would be an interaction between mode of education and degree level on employer perceptions of applicants' viability. Specifically, as the mode of education moves from hybrid to online, employer perceptions of applicants' hireability would decrease for more advanced degrees. Doctorate degrees would be perceived greater than Master's degrees at traditional and hybrid mode of education levels, respectively. Master's degrees would be perceived greater than Bachelor's degrees at traditional and hybrid mode of education levels, respectively. At the online mode of education level, employer perceptions of online education would be higher for less advanced degrees. Online Bachelor's degrees would be perceived higher than Master's degrees, and online Master's degrees would be perceived higher than online Doctorate degrees.

To test hypothesis 4, a factorial repeated-measures ANOVA was conducted (See Appendix C). Mauchly's test indicated that the assumption of sphericity had been violated for the main effect of mode of education on viability,  $\chi^2(2) = 58.09, p < .001$ . Therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ( $\epsilon = .78$ ). There was no significant interaction between mode of education and degree level on viability,  $F(3.14, 341.97) = .53, p = .67, r = .04$ .

For the non-transformed data, contrasts revealed no interaction when comparing traditional to online for Doctorate compared to Bachelor's,  $F(1, 109) = 1.58, p = .21, r = .12$ , Master's compared Bachelor's,  $F(1, 109) = .45, p = .5, r = .06$ , or Doctorate compared to Master's,  $F(1, 109) = .37, p = .54, r = .06$  (See Table 6).

Table 6. Repeated Measures Factorial ANOVA Contrasts of Original Variables on Viability

Contrast	<i>F</i>	<i>df</i>	<i>p</i>	<i>r</i>
Traditional vs. Online				
Bachelor's vs. Doctorate	1.58	109	0.21	0.12
Bachelor's vs. Master's	0.45	109	0.5	0.06
Master's vs. Doctorate	0.37	109	0.54	0.06
Traditional vs. Hybrid				
Bachelor's vs. Doctorate	1.63	109	0.21	0.12
Bachelor's vs. Master's	0.223	109	0.64	0.45
Master's vs. Doctorate	1	109	0.32	0.1
Hybrid vs. Online				
Bachelor's vs. Doctorate	0	109	1	0
Bachelor's vs. Master's	0.03	109	0.87	0.02
Master's vs. Doctorate	0.03	109	0.86	0.02

There was no interaction when comparing traditional to hybrid for Doctorate compared to Bachelor's,  $F(1, 109) = 1.63, p = .21, r = .12$ , Master's compared to Bachelor's  $F(1, 109) = .223, p = .64, r = .45$ , or Doctorate compared to Master's,  $F(1, 109) = 1, p = .32, r = .1$ .

When comparing hybrid to online, no interaction was found for Doctorate compared to Bachelor's,  $F(1, 109) = 0, p = 1, r = .0$ , Master's

compared to Bachelor's,  $F(1, 109) = .03, p = .87, r = .02$ , or Doctorate compared to Master's,  $F(1, 109) = .03, p = .86, r = .02$ .

For the transformed data, Mauchly's test indicated that the assumption of sphericity had been violated for the main effect of mode of education on viability,  $\chi^2(2) = 29.78, p < .001$ . Therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ( $\epsilon = .87$ ). There was no significant interaction between mode of education and degree on viability,  $F(3.48, 379.75) = .39, p = .79, r = .03$ . Contrasts revealed no interaction when comparing traditional to online for Doctorate compared to Bachelor's,  $F(1, 109) = .4, p = .53, r = .06$ , Master's compared Bachelor's,  $F(1, 109) = .001, p = .98, r = .003$ , or Doctorate compared to Master's,  $F(1, 109) = .001, p = .98, r = .003$  (See Table 7).

Table 7. Repeated Measures Factorial ANOVA Contrasts of Log Transformed Variables on Viability

Contrast	<i>F</i>	<i>df</i>	<i>p</i>	<i>r</i>
Traditional vs. Online				
Bachelor's vs. Doctorate	0.4	109	0.53	0.06
Bachelor's vs. Master's	0.001	109	0.98	0.003
Master's vs. Doctorate	0.001	109	0.54	0.06
Traditional vs. Hybrid				
Bachelor's vs. Doctorate	0.7	109	0.41	0.08
Bachelor's vs. Master's	0.09	109	0.77	0.03
Master's vs. Doctorate	1.71	109	0.19	0.12
Hybrid vs. Online				
Bachelor's vs. Doctorate	0.08	109	0.78	0.03
Bachelor's vs. Master's	0.08	109	0.78	0.03
Master's vs. Doctorate	0.26	109	0.61	0.05



There was no interaction when comparing traditional to hybrid for Doctorate compared to Bachelor's,  $F(1, 109) = .7, p = .41, r = .08$ , Master's compared to Bachelor's  $F(1, 109) = .09, p = .77, r = .03$ , or Doctorate compared to Master's,  $F(1, 109) = 1.71, p = .19, r = .12$ .

When comparing hybrid to online, no interaction was found for Doctorate compared to Bachelor's,  $F(1, 109) = .08, p = .78, r = .03$ , Master's compared to Bachelor's,  $F(1, 109) = .08, p = .78, r = .03$ , or Doctorate compared to Master's,  $F(1,109) = .26, p = .61, r = .05$ .

Additional analysis was run to investigate differences in results between different groups of participants. To maximize power for comparison, assigning participants to groups based on their responses to demographic questions was determined by having the two groups samples as equal as possible for the following variables. The outcome variable was a composite variable combining employer perceptions of applicants' hireability for applicant profiles in which applicants completed their education online and at any degree level.

For question 34, participants were grouped into those that did not complete a substantial amount of coursework online (i.e., respondents that selected: I have not completed coursework online; less than 30 semester/45 quarter units; or at least 30 semester/45 quarter units, but less than 60 semester/90 quarter units), which made up 50% ( $N = 55$ ) of participants, and those that did complete a substantial amount of coursework online (i.e., respondents that selected: at least 60 semester/90 quarter units, but less than

90 semester/120 quarter units; at least 90 semester/120 quarter units, but less than 120 semester/180 quarter units; at least 120 semester/180 quarter units, Bachelor's Degree; Master's Degree; or Phd), which made up 50% ( $N = 55$ ) of participants. A Kolmogorov-Smirnov test was conducted to test the two groups distribution for normality. Employer perceptions of online applicants' hireability for those that did not complete online coursework,  $D(55) = .132$ ,  $p < .05$ , and those that completed a substantial amount of online coursework,  $D(55) = .164$ ,  $p < .05$ , were significantly non-normal (See Table 8).

Table 8. Group Normality

Variable	<i>n</i>	<i>K-S</i>		<i>Levene's</i>		
		<i>D</i>	<i>p</i>	<i>F</i>	<i>df</i>	<i>p</i>
Complete Online Coursework						
No Coursework	55	0.132	0.018*	0.04	108	0.841
Coursework	55	0.164	0.001*			
Taught Online						
No Teaching	68	0.173	0*	0.307	108	0.581
Taught	42	0.15	0.019*			
Time Taught Online						
No Time	67	0.173	0*	0.183	108	0.67
Time	43	0.147	0.021*			
Employer Staff Online Degrees						
No Degrees	54	0.145	0.006*	0.039	96	0.843
Degrees	44	0.167	0.004*			
Mode Bias						
Agree	90	0.136	0*	0.367	97	0.546
Disagree	9	0.2	0.2			
Fundamental Attribution Error						
Agree	48	0.176	0.001*	0.722	90	0.398
Disagree	44	0.171	0.002*			

\*Significant at the .05 level

A Levene's test was conducted to test the two groups distributions for homogeneity of variance. The variances were equal for those that did not complete a substantial amount of coursework online and those that did complete a substantial amount of online coursework,  $F(1,108) = .04, ns$ . Because the distributions of both groups were non-normal, results violated parametric assumptions for the independent  $t$ -test and a non-parametric Wilcoxon rank-sum test was conducted. The test was one-tailed because it was expected that those that have completed substantial online coursework would have greater perceptions of online applicants' hireability. Employer perceptions of online applicants' hireability were greater for those who completed substantial coursework online ( $Mdn = 5.33$ ) from those that did not complete a substantial amount of online coursework ( $Mdn = 4.67$ ),  $W_s = 2,726, z = -1.971, p < .05, r = -.19$  (See Table 9). The  $r$ -value indicated between a small and medium effect.

Table 9. Group Mean Comparisons

<i>Wilcoxon rank-sum Tests</i>						
Variable	<i>n</i>	<i>Mdn</i>	<i>W<sub>s</sub></i>	<i>z</i>	<i>p</i>	<i>r</i>
Complete Online Coursework						
No Coursework	55	4.67	2,726	-0.20	0.02*	-0.19
Coursework	55	5.33				
Taught Online						
No Teaching	68	4.67	3,302	-2.93	0.001*	-0.28
Taught	42	5.67				
Time Taught Online						
No Time	67	4.67	3,191	-3.26	0.021*	-0.31
Time	43	5.67				
Employer Staff Online Degrees						
No Degrees	54	5	2,391	-2.03	0.021*	-0.21
Degrees	44	5.67				
Mode Bias						
Agree	90	5	436	-0.17	0.43	-0.02
Disagree	9	5				
Fundamental Attribution Error						
Agree	48	5	1,792	-2.00	0.02*	-0.21
Disagree	44	5.67				

\*Significant at the .025, one-tailed

For question 35, participants were grouped into those that did not teach online courses (i.e., respondents that selected: I have not taught coursework online), which made up 61.8% ( $N = 68$ ) of participants, and those that did teach online courses (i.e., respondents that selected: less than 3 courses; at least 3 courses, but less than 6 courses; at least 6 courses, but less than 9 courses; at least 12 courses, but less than 24 courses; or 24 courses or more), which made up 38.3% ( $N = 42$ ) of participants.

A Kolmogorov-Smirnov test was conducted to test the two groups distribution for normality. Perceptions for those that have not taught online,  $D(68) = .173$ ,  $p < .001$ . and those that have taught online,  $D(42) = .15$ ,  $p < .05$ , was significantly non-normal. A Levene's test was conducted to test the two groups distributions for homogeneity of variance. The variances were equal for those that taught a substantial amount of coursework online and those that did not teach a substantial amount of coursework online,  $F(1,108) = .307$ , *ns*. Because the normality results violated parametric assumptions for the independent *t*-test, a non-parametric Wilcoxon rank-sum test was conducted. The test was one-tailed because it was expected that those that have taught online would have greater perceptions of online applicants' hireability. Employer perceptions of online applicants' hireability were greater for those who have taught online coursework ( $Mdn = 5.67$ ) from those that did not complete a substantial amount of online coursework ( $Mdn = 4.67$ ),  $W_s = 3,302$ ,  $z = -2.933$ ,  $p < .001$ ,  $r = -.28$ . The *r*-value indicated a medium effect.

For question 36, participants were grouped into those that have not taught online courses for a substantial amount of time (i.e., respondents that selected: I have not taught online coursework), which made up 60.9% ( $N = 67$ ) of participants, and those that have taught online coursework for a substantial amount of time (i.e., respondents that selected: less than 1 semester/1.5 quarters; at least 1 semester/1.5 quarters, but less than 1 years; at least 1 year, but less than 1.5 years; at least 1.5 years, but less than 2 years; at least 2 years, but less than 3 years; at least 3 years, but less than 6 years; at least 6 years, but less than 12 years; or 12 years or more), which made up 39.1% ( $N = 43$ ) of respondents. A Kolmogorov-Smirnov test was conducted to test the two groups distribution for normality. Perceptions of those that have not taught online for a substantial amount of time,  $D(67) = .173$ ,  $p < .05$ , and perceptions of those that have taught online for a substantial amount of time,  $D(43) = .147$ ,  $p < .05$ , were both significantly non-normal. A Levene's test was conducted to test the two groups distributions for homogeneity of variance. The variances were equal for those that taught online coursework for a substantial amount of time and those that did not teach online coursework for a substantial amount of time,  $F(1,108) = .183$ ,  $ns$ . Because the normality results violated parametric assumptions for the independent  $t$ -test, a non-parametric Wilcoxon rank-sum test was conducted. The test was one-tailed because it was expected that those that have taught online for a substantial amount of time would have greater perceptions of online applicants' hireability. Employer perceptions of

online applicants' hireability were greater for those who have taught online coursework for a substantial amount of time ( $Mdn = 5.67$ ) from those that did not complete a substantial amount of online coursework ( $Mdn = 4.67$ ),  $W_s = 3,191$ ,  $z = -3.263$ ,  $p < .001$ ,  $r = .31$ . The  $r$ -value indicated a medium effect.

For question 38, participants were grouped into those that were employed by participants whose employers that did not have a substantial percentage of personnel that have completed degrees online (i.e., respondents selected: none of my employers' staff have completed degrees from online colleges; less than 5%; at least 5%, but less than 10%; or at least 10%, but less than 15), which made up 48.6% ( $N = 54$ ) of respondents, and participants whose employers did have a substantial percentage of personnel that have completed online degrees (i.e., respondents selected: at least 15%, but less than 20%; at least 20%, but less than 25%; at least 25%, but less than 30%; at least 30%, but less than 40%; at least 40%, but less than 50%; at least 50%, but less than 60%, at least 60%, but less than 80%; at least 80%, but less than 100%; 100%), which made up 39.6% ( $N = 44$ ) of respondents. Some participants selected multiple responses. The multiple responses for each participant fell within the range for the two groups: participants that did not have employers with a substantial amount of personnel that have completed online degrees (i.e., none to at least 10%, but less than 15%) and participants that did have employer's with a substantial amount of personnel that have completed online degrees (i.e., at least 15%, but less than 20% to



100%). Each was grouped into the respective categories. A Kolmogorov-Smirnov test was conducted to test the two groups distribution for normality. Employer perceptions of online applicants hireability for those whose employers do not have a substantial amount of staff with online degrees,  $D(54) = .145$ ,  $p < .05$ , and those whose employers have a substantial amount of staff with online degrees,  $D(44) = .167$ ,  $p < .05$ , were significantly non-normal. A Levene's test was conducted to test the two groups distributions for homogeneity of variance. For employer perceptions of online applicants' hireability, the variances were equal for those that did not complete a substantial amount of coursework online and those that did complete a substantial amount of online coursework,  $F(1,96) = .039$ ,  $p = .843$ . Because the normality results violated parametric assumptions for the independent  $t$ -test, a non-parametric Wilcoxon rank-sum test was conducted. The test was one-tailed because it was expected that those who have employers with a substantial amount of staff who have online degrees would have greater perceptions of online applicants' hireability. Employer perceptions of online applicants' hireability were greater for those who had employers with staff with a substantial amount of online degrees ( $Mdn = 5.67$ ) from those that did not complete a substantial amount of online coursework ( $Mdn = 5$ ),  $W_s = 2,391$ ,  $z = -2.032$ ,  $p < .05$ ,  $r = -.21$ . The  $r$ -value indicated a medium effect.

The following demographic variables were separated into two groups based on the logic of the items response options. Each variable offered 7

responses in the form of a likert scale, ranging from strongly agree to strongly disagree. One group was for participants that agreed (i.e. respondents that selected: strongly agree, agree, and somewhat agree) and the other group is composed of participants that disagreed (i.e., respondents that selected: somewhat disagree, disagree, or strongly disagree).

A Kolmogorov-Smirnov test was conducted to test the two groups distribution for normality. Question 39 addressed employer perceptions of applicants hireability for those that agree versus those that disagree with the following statement: Generally, employers are biased in favor of job applicants who have completed education traditionally, and against job applicants who have completed education online. Those that agreed were significantly non-normal,  $D(90) = .136$ ,  $p < .05$ , but those that disagreed were normal,  $D(9) = .2$ ,  $p = .2$ . A Levene's test was conducted to test the two groups distributions for homogeneity of variance. For employer perceptions of online applicants hireability, the variances were equal for those that agreed and disagreed with the statement,  $F(1,97) = .367$ ,  $p = .546$ . Because one of the normality test results violated parametric assumptions for the independent  $t$ -test, a non-parametric Wilcoxon rank-sum test was conducted. The test was one-tailed because it was expected that those who agreed with the statement would have greater perceptions of online applicants' hireability than those that disagreed. Employer perceptions of online applicants' hireability were not greater for those that agreed ( $Mdn = 5$ ) from those that disagreed ( $Mdn = 5$ ),

$W_s = 436$ ,  $z = -.172$ ,  $p = .863$ ,  $r = -.02$ . The  $r$ -value indicated a very small effect.

A Kolmogorov-Smirnov test was conducted to test the two groups distribution for normality. Question 41 addressed employer perceptions of applicants' hireability for those that agree versus those that disagree with the following statement: Students attend college online instead of traditionally because of their ability/competence, not situational circumstances. Those that agreed  $D(48) = .176$ ,  $p < .05$ , and disagreed,  $D(44) = .171$ ,  $p < .05$ , were both significantly non-normal. A Levene's test was conducted to test the two groups distributions for homogeneity of variance. For employer perceptions of online applicants' hireability, the variances were equal for those that agreed and disagreed with the statement,  $F(1,90) = .722$ ,  $p = .398$ . Because the normality results violated parametric assumptions for the independent  $t$ -test, a non-parametric Wilcoxon rank-sum test was conducted. The test was one-tailed because it was expected that those who disagreed with the statement would have greater perceptions of online applicants' hireability than those that agreed. Employer perceptions of applicants' hireability were greater for those that agreed ( $Mdn = 5.67$ ) from those that disagreed ( $Mdn = 5$ ),  $W_s = 1,792$ ,  $z = -2.002$ ,  $p < .05$ ,  $r = -.21$ . The  $r$ -value indicated a medium effect.

## CHAPTER FOUR

### DISCUSSION

The purpose of the study was to investigate the influence of mode of education and degree level on employer perceptions of applicants' hireability. As bias has been found in research studying specific industries, bias was expected in this study that included subjects from any industry. It was anticipated that employer perceptions of applicants hireability would be higher for a traditional mode of education than for an online mode of education, and this relationship would be consistent when introducing a mixed level to the mode of education variable, hybrid education. Specifically, employers were expected to have a higher perception for applicants with a traditional education than for applicants with a hybrid education and a higher perception of applicants with a hybrid education compared to applicants with an online mode of education.

In addition, it was anticipated that this finding would be the same for another outcome variable, viability, or hiring personnel decisions to move forward with an applicant in the hiring process (i.e., inviting the applicant to interview) With the exception to one study (Deming et al., 2014), this variable had not been investigated in the extant literature. Furthermore, it was predicted that incorporating degree level into the relationship of mode of education on employer perceptions of applicants' hireability, would change the relationship of mode of education on employer perceptions of applicants'

hireability. In particular, it was expected that while employer perceptions of applicants hireability decrease as mode of education moved to a category consisting of more online education and employer perceptions of applicants hireability increase as degree level increases, employer perceptions of applicants' hireability would be higher for Bachelor's degrees than Master's degrees, and Master's degrees would be higher than Doctorate degrees, when the mode of education moved from hybrid to online. This is because employers would value online degrees less as the degrees became more advanced. This same relationship was expected for the viability outcome variable.

## Findings

### Mode of Education

As expected and consistent with previous research, employer perceptions of applicants' hireability were higher for a traditional mode of education than an online mode of education (Adams & DeFleur, 2005; Adams & DeFleur, 2006; Adams, Lee, & Cortese, 2012; Adams et al., 2007; Connolly & Diepenbrock, 2011; Deming et al., 2014; DePriest & Absher, 2013; Flowers & Baltzer, 2006; Mustafa, 2012; Huss, 2007; Rechlin & Kraiger, 2012), and higher for a hybrid mode of education than an online mode of education (DePriest & Absher, 2013). The same relationships were found for the viability outcome variable. This is consistent with Deming et al. (2014), the only study to account for viability bias. The current study builds on the work of Deming et

al. (2014), by showing the relationship of mode of education on employer perceptions of applicants' hireability holds with the introduction of the hybrid level of mode of education.

### Degree Level

With no employer perceptions literature incorporating the degree level variable, degree level was predicted to moderate the influence of mode of education on employer perceptions of applicants' hireability. There was no interaction between mode of education and degree level on employer perceptions of applicants' hireability or viability. The omnibus test on the hireability outcome was non-significant, however, the p-value was slightly beyond the threshold of statistical significance ( $p = .067$ ), and the effect sizes are comparable for analysis run on data that was log transformed. Therefore, consideration should be given to results of analysis using the log-transformed variables, which yielded a significant interaction ( $p = .015$ ). The factorial repeated-measures ANOVA of the log-transformed data yielded a statistically significant interaction. As mode of education moved from traditional to hybrid, employer perceptions of applicants' hireability decreased at a greater rate for Doctorate degrees than Bachelor's degrees, and Master's degrees compared to Bachelor's degrees. As mode of education moved from hybrid to traditional, employer perceptions of applicants' hireability decreased at a greater rate for Doctorate degrees than Master's degrees and Bachelor's degrees compared to Master's degrees.

### Group Comparisons

It was predicted that employer perceptions of online applicants' hireability would be greater for groups split by various demographic information. In attempt to identify sources for attributions, psychological biases are posited to explain the findings from various studies by logically linking them to specific studies.

Hireability perceptions of online applicants were higher for participants who completed a substantial amount of coursework than those who have not, those who have taught online coursework compared to those who have not, and those who have taught online coursework for a substantial amount of time compared to those who have not. These findings support the in-group bias as an attribution for perceptions, which similarly can be applied to the results of Mustafa (2012), where subjects were biased against online degrees and had not completed online courses and the results of Thompson (2009), where bias was particularly found when the majority of employers' staff held Bachelor's degrees. This studies' finding is inconsistent though, with Adams et al. (2012) results that found no differences in perceptions between subjects with varying degrees of online education experience but consistent with their finding that principals were more favorable towards online education when the principals' schools planned to offer credit for online courses.

Hireability perceptions of online applicants were higher for participants whose employers have a substantial amount of staff that have completed

online degrees compared to those whose employers do not have a substantial amount of staff with online degrees. This finding adds to the findings of Thompson (2009), that supports the similar-to-me bias as a source for unequal employer perceptions.

Perceptions of online applicants hireability were higher for those that agreed with the statement that students attend college online due to their competence, not situational factors. This is the opposite of what was expected. It was expected that those who disagreed with the statement would have higher perceptions of online applicants hireability than those who agreed with the statement. These results direct sources of employer attributions away from the fundamental attribution error.

There was no difference in perceptions of online applicants found between those that agreed and disagreed with the statement that employers are generally biased in favor of applicants who have completed their education traditionally, and biased against students who have completed their college education online. The inability to detect a significant difference may be explained by the lack of power of the comparative analysis. Power is maximized when there are a similar number of participants in each group. In this case, 90 subjects were included in the agree group, and only 9 were included in the disagree group.



## Limitations

Question 35 'Number of courses taught online' was created without including a logical choice in response. The responses did not account for participants that taught 'at least 9 courses, but less than 12 courses'.

Participants who would have selected this option were not able to do so, and the data for the variable is likely to be skewed and or inaccurate.

Providing hiring personnel with only two pieces of information regarding screening applicants for open positions minimizes the fidelity of an applicants' application or resume. Often, hiring personnel do not only consider these two variables in isolation. Therefore, the results are likely to be influenced by other variables that are commonly included in an applicants' resume or application, such as grade point average, internship or externship experience, publications, and volunteer work.

Though it was intended to provide context, choosing a Human Resources Analyst as the position under consideration may influence hiring decisions based on varying knowledge of the position among research subjects. Specifying the position intended to offer participants more information on which to base a decision by more closely simulating the circumstances of a hiring situation; however, professionals in some industries may be less familiar with such a classification. Therefore, it is reasonable to suspect there may be a difference in perceptions of applicants for different

positions among the same participants (same industry), which is not accounted for by the present study.

While the intention of not limiting subjects to a particular industry of employment as a requirement to participate in the study was meant to increase representation across industries of the sample, the industries that were most represented were those that most of the extant literature has targeted (i.e., Education and Healthcare). Other industries accounted for such small portions of the overall sample that analysis by those industries could not be granted much merit nor should the findings be interpreted as generalizable across employment industries.

## CHAPTER FIVE

### IMPLICATIONS AND DIRECTIONS FOR FUTURE RESEARCH

#### Theoretical Implications

The literature has consistently found employer bias for traditional, face-to-face college education (Adams & DeFleur, 2005; Adams & DeFleur, 2006; Adams, Lee, & Cortese, 2012; Adams et al., 2007; Connolly & Diepenbrock, 2011; Deming et al., 2014; DePriest & Absher, 2013; Flowers & Baltzer, 2006; Mustafa, 2012; Huss, 2007; Rechlin & Kraiger, 2012). One study accounted for a mixed level of education (DePriest & Absher, 2013), which only accounted for the Education industry. It was shown that there is a linear relationship between mode of education and employer perceptions of applicants' hireability. Employer perceptions decrease as mode of education moves to a category with more online coursework. It is important to note that this bias was detected despite a substantial amount of the participants having experience with online education. For those that have completed online coursework, 27.9% ( $N = 31$ ), 16.2% ( $N = 18$ ), and 3.6% ( $N = 4$ ), held online Bachelor's Master's, and Doctoral degrees, respectively. This equals a total of 53 subjects, or nearly half of the sample (47.7%) that completed a Bachelor's degree or higher online. Collectively, 79.2% ( $N = 88$ ) of participants in the sample had completed at least 30 semester/45 quarter units online.

The current study was not industry-specific, though the most represented industries in the study, were also those in which most of the

research has been conducted (with the exception of Information Technology) and substantiated a bias for traditional education. These include Education and Healthcare, but also Information Technology. The next most represented industries were Finance/Accounting at 8.7% ( $N = 9$ ), and Construction, Manufacturing, Hospitality, and Engineering, each equaling 4.9% ( $N = 5$ ). These samples were too small for statistical analysis. In order to contribute to the external validity of the effect mode of education has on employer perceptions of applicants' hireability, further research targeting samples representing specific industries of employment is needed. However, it is likely that due to the humanitarian and altruistic nature of the work, professionals in the Education and Healthcare industries are more sympathetic to online education. Because bias was found in a sample that consisted predominantly of them, even greater bias can be expected among the general population.

Further analyses of the data by participant demographics provide insight on possible causes for employer attributions. Perceptions of online applicants' hireability were greater for participants that have taken at least 60 semester units online or more, have taught online, and have taught online (in terms of number of courses and time taught) compared to those who have not. This provides support for the similar-to-me bias. Similarly, perceptions of online applicants' hireability were higher for participants' who worked for companies that had at least 15% of staff complete degrees online. This finding is consistent with the in-group bias. Surprisingly, perceptions of applicants'

were higher for employers who believed students attend online college because of situational factors as opposed to students' ability or competence. Perceptions were, in fact, higher, for those that disagreed with the statement. In past research, where bias against online degrees has been found, employers often mention their concern with the academic rigor of online programs. It is reasonable to believe that employers' negative perception of online education is extended to their perceptions of online applicants' ability or competence. It is reported though, that students often attend school online because of the flexibility it affords them in accommodating other obligations in their lives. Employers may mistakenly attribute students attending school online due to the students' ability, as opposed to situation factors. These results do not support the notion that employer bias attributions may be a result of the fundamental attribution error. Because the similar-to-me and in-group biases were supported, results indicate the source of employer attributions may be more a result of whether online education is a norm in that it is comparable to what is common or advocated among groups employers identify with as opposed to a judgment of the applicants' ability. Further research should further investigate sources of attributions. Perhaps a list of reasons for bias can be offered as responses to questions posed to employers, which ask them directly about their reasons for bias against online education. Responses can be clustered into categories that indicate or support various attributions and analysis can be conducted to determine whether or

not the responses correspond to employer responses to other questions, like their stance on the fundamental attribution error and mode bias.

Employer perceptions on online applicants' hireability were not different between participants that agreed and disagreed with the statement that generally, employers are biased in favor of job applicants who have completed education traditionally, and against applicants who have completed education online. This may be a result of the power of the analysis. It is less likely to detect a difference when one exists if the sizes of the groups are not comparable. As mentioned, 90 participants were included in the group that agreed, and only 9 participants were included in the group that disagreed. Therefore, participants largely believed the bias to exist, though a difference in perceptions of online candidates did not support their responses. Further research should examine the relationship using a sample with more power.

Further, a decreasing linear relationship was found for the effect of mode of education on employer perceptions of applicants' viability. This shows employer bias not only influences hiring decisions, but opportunities for employment as well (Deming et al., 2014).

In addition to employers being less likely to hire applicants with online education, employers also find those candidates less viable. They are less likely to even consider online candidates for employment, even if a final decision was not being made, but instead they were screening candidates to continue in their selection process (prompted in this study as inviting a

candidate to interview). It may prove useful to investigate if the negative perceptions employers have of candidates with online education can be negated if the applicants' application demonstrated interpersonal skills with other characteristics, such as extracurricular activities, internships, and leadership positions.

Perceptions of education increase as degree levels increase, but employers are biased against online education, largely because they value social skills that they do not believe online education affords its students. Because attending school online did not change the relationship between employer perceptions of hireability and level of education, the applicants' level of education is proven more influential on employer perceptions of applicants' hireability than the negative stigma of online education. In evaluating applicants for jobs, employers will have considered the level of the applicants' degree to a greater extent than the mode of education used for the applicant to earn the degree. Because the degree level dictates the direction and level of perceptions without influence from the mode of education, the degree level outweighs mode of education in terms of importance in forming employer perceptions. However, results yielded values slightly beyond those required for statistical significance. Comparable analyses indicated an interaction exists; specifically, that employer perceptions of applicants' hireability decrease quicker for Doctorate degrees than Bachelor's degrees, and Master's degrees than Bachelor's degrees as mode of education moves from traditional to

hybrid. This suggests that at the Master's and Doctorate levels of education, a traditional mode of education is especially expected. Additionally, as mode of education moves from hybrid to online, employer perceptions of applicants' hireability decrease at a greater rate for Doctorate degrees than Master's degrees, and Bachelor's degrees than Master's degrees. Although at the online level of education, perceptions of degrees did not show an inverse outcome, perceptions decreasing at a greater rate for Doctorate degrees than Master's degrees indicates that earning a Doctorate degree online is considered exceptionally worse at the online level of education. Bachelor's degrees decreasing at a greater rate than Master's degrees might be explained considering that a Bachelor's degree is required for the position. Online education may be particularly negatively perceived when a candidate just meets the requirements with online education, whereas online isn't perceived as bad when the candidate has education beyond what is required.

### Practical Implications

A main effect was found for mode of education on employer perceptions of applicant's hireability. Employers hireability perceptions for applicants with traditional degrees are higher than hireability perceptions for applicants with online and hybrid degrees. These perceptions are higher for hybrid degrees than online degrees.

With this information, potential college students pursuing education beyond high school will be able to make a more informed decision about



whether to pursue a college program depending on the amount of coursework that will be instructed traditionally. It is assumed that whether or not earning a college degree will likely contribute to gainful employment post-graduation is a significant consideration in determining whether one should attend college. If it is, then it is useful to know that employers have biases against degrees earned online as employers are less likely to select candidates who have these types of degrees over those who earned their degree from a traditional college. Furthermore, potential students concern should be more prominent knowing that employers are not only biased in hiring online candidates, but also interviewing them as applicants or moving them forward in the selection process. Findings provide more in-depth information than is available, as degrees are not simply earned online or not. Perceptions of applicants with hybrid degrees were higher than those with degrees that are mostly earned online. Potential college students considering attending an online program should also consider then, finding and pursuing programs that offer mixed coursework to earn the best-perceived degree, and thus, the degree that will give them the best chance at attaining employment, given their options and circumstances. There was no statistical difference between the perceptions of applicants with online Master's degrees and hybrid Master's degrees so students pursuing a Master's degree who cannot attend traditionally, are able to pursue purely online with no change in employer perceptions by attempting to complete a program that is partially traditional.

Of course, this should be noted particularly for the Healthcare and Education industries, as most participants belonged to them. Furthermore, and as mentioned in the limitation section, these findings may not only be limited in generalizability to other industries, but for the type of position too. Employers may perceive careers without considerable overlap to analyst positions in human resources differently.

Findings of the study may prove useful to online programs and online institutions. The information of the study is informative for purposes of advertising their programs or schools, knowing there is a bias against them by employers who will eventually consider the online schools graduates for employment. Online schools or programs may aim to actively work on providing insight to address these concerns in hopes of stymying or reversing them, and may do so not simply by educating or enlightening prospective students about how online education yields comparable learning outcomes to traditional education, but by offering online programs and schools some direction as to what quality issues should be given a closer look to ensure the efficacy of their online education platforms. Efforts should be exercised to educate employers of online educations merit, especially if the organizations acknowledge online education as meeting minimum requirements for jobs.

Additionally, a number of considerations have been recognized that may temper and even trump mode of education, as far as its influence on employers negative perceptions of online education. For those who have

fewer options and must earn a college degree online, such as those who must work full-time to support a family, this study offers further information regarding what online students should look for in a college, to earn a degree that will be more optimally marketable post-graduation. Specifically, potential students have more knowledge of whether or not enrolling in a program based on the degree they are attaining is an important factor to consider when deciding to attend a hybrid or online school or program. Students should consider online education with more caution if they are considering earning higher levels of degrees. It may prove to be a poor investment to assume greater levels of debt or financial expenses for tuition for a more advanced degree, given that perceptions will not improve with the level of degree (Master's to Doctorate), accordingly. Statistically, a traditional Bachelor's degree had higher perceptions than an online Master's degree and online Doctorate degree. This would indicate that there may be no value added in pursuing an advanced degree if it is not obtained traditionally and if the student has already obtained a Bachelor's degree traditionally. It should be noted again that this is specifically the case for a Human Resources Analyst position that requires a Bachelor's degree so the findings may only be applied for consideration in applying to similar positions, mainly in the Education and Healthcare industries.

Because perceptions decreased at a greater rate for Master's and Doctorate degrees compared to Bachelor's degrees when moving from a

traditional to hybrid mode of education, students with traditional Bachelor's degrees considering pursuing advanced education that offers the option of online coursework to complete the program should proceed with caution. For the Human Resources Analyst position, an advanced degree may not add any value to the applicants' competitiveness when it involves a substantial amount of coursework online.

Because perceptions decreased at a greater rate for Doctorate degrees compared to Master's degrees as education moved from hybrid to online, applicants looking to increase their competitiveness for a Human Resources Analyst position by pursuing a Doctorate degree may not be successful in doing so when the position requires a Bachelor's degree and they intend to earn the Doctorate online.

#### Discussions for Future Research

In order to generalize findings of bias found in previous research and this study, studies should target subjects from specific industries. This is because employment industry demographics of a non-specific sample are likely to represent the population, resulting in sample sizes of industries other than Healthcare and Education that are too small to analyze independently.

Hiring personnel are often able to have more information about an applicant than the applicants' mode of education and degree level. Perhaps future research can investigate a greater number of variables simultaneously, to increase the fidelity of an applicants' resume or application.

Further research should be conducted to investigate if the type of degree or field of study is important in the formation of employer perceptions. Employers may value degrees less as they advance when the degrees are earned online, but the relationship may change for fields of study in which social skills and interpersonal interaction are not of paramount importance in terms of predicting job performance.

Continued research should focus on critically examining sources of perceptions. This study provided support for the similar-to-me and in-group biases' for employer bias. Research may pose background information regarding participants current employer, where participants are informed that their employer has a specified percentage of employees holding online and hybrid degrees to determine if this notion has an influence on their evaluation of candidates. Perhaps the issue with online education exists not in the quality of the education, but an unfounded bias of its perception; particularly with employers in this context.

Finally, future researchers should consider the impact that the positions requirements have in forming employer perceptions. Not only may the field of study for the degree impact employer perceptions, but the extent to which social skills are relevant for the vacancy may play an important role as well. This study specified a Human Resources Analyst position, which largely involves interpersonal interaction. If the position required only a high school education, perceptions for any level of education exceeding the requirement

may be similar, as was the case with Master's and Doctorate degrees for the position in this study that only required a Bachelor's degree. Often, education can compensate for years of experience in terms of being eligible for a job. Future researchers should account for positions in which requirements can be met with any level of degree if accompanied by greater amount of work-related experience.

APPENDIX A  
SCALES

## Demographic Items

The following demographic items are being asked in order to analyze the data at a group level. The answers to the following questions will NOT be used to identify any individual participant.

1. Select your gender.
  - a. Male
  - b. Female
  - c. I do not wish to disclose.
  
2. Select your race.
  - a. White
  - b. Black
  - c. Asian
  - d. Latino/Hispanic
  - e. Native American
  - f. Two or more
  - g. Other:
  
3. Select your highest level of education.
  - a. Less than High School
  - b. High School or Equivalent
  - c. Some College
  - d. Associate's Degree
  - e. Bachelor's Degree
  - f. Master's Degree
  - g. Doctorate
  - h. Professional Certification
  
4. Select the industry in which you are employed?
  - a. Construction
  - b. Education
  - c. Engineering
  - d. Finance/Accounting
  - e. Government
  - f. Healthcare
  - g. Hospitality
  - h. Information Technology
  - i. Manufacturing
  - j. Media
  - k. Military
  - l. Real Estate
  - m. Science



- n. Transportation
  - o. Other: (List)
5. List your job title:
6. Select the response that most accurately reflects your completion of online coursework.
- a. I have not completed any coursework online
  - b. Less than 30semester/45quarter units
  - c. At least 30semester/45quarter units, but less than 60semester/90quarter units
  - d. At least 60semester/90quarter units, but less than 90semester/120quarter units
  - e. At least 90semester/120quarter units, but less than 120semester/180quarter units
  - f. At least 120semester/180quarter units (degree not earned)
  - g. Bachelor's Degree
  - h. Master's Degree
  - i. PhD
  - j. Professional Certification
7. Select the response that most accurately reflects your experience teaching online coursework (distinct course titles).
- a. I have not taught any coursework online
  - b. Less than 3 courses
  - c. At least 3 courses, but less than 6 courses
  - d. At least 6 courses, but less than 9 courses
  - e. At least 9 courses, but less than 12 courses
  - f. At least 12 courses, but less than 24 courses
  - g. Greater than 24 courses
8. Select the response that most accurately reflects the length of time you have taught at least one online course.
- a. I have not taught online courses
  - b. Less than 1 semester/1.5quarters
  - c. At least 1 semester/1.5quarters, but less than 1 year (2 semesters/3quarters)
  - d. At least 1 year (2 semesters/3quarters), but less than 1.5 years (3 semesters/4.5quarters)
  - e. At least 1.5 years (3 semesters/4.5quarters), but less than 2 years (4semesters/6quarters)
  - f. At least 2 years (4semesters/6quarters), but less than 3 (6semesters/9quarters)

- g. At least 3 years (6semesters/9quarters), but less than 6 years (12semesters/18quarters)
  - h. At least 6 years (12semesters/18quarters), but less than 12 years (24semesters/36quarters)
  - i. Greater than 12 years (24semesters/36quarters)
9. Select the response(s) that most accurately reflects your current employers' policy towards online education (Select all that apply).
- a. My employer does not honor online coursework for job education requirements.
  - b. My employer honors online coursework for job education requirements.
  - c. My employer offers options for current employees to complete online coursework (e.g. flexible schedules such as modified or part-time status to accommodate attending school)
  - d. My employer offers tuition reimbursement for employees attending online programs/completing online coursework.
  - e. My employer offers tuition assistance for employees attending online programs/completing online coursework.
  - f. My employer has a partnership with a school that offers online coursework.
  - g. I do not know
10. To the best of your knowledge, select the response that most accurately reflects the percentage of your employers' personnel that has completed degrees from online colleges.
- a. None of my employer staff have completed degrees from online colleges.
  - b. Less than 5%
  - c. At least 5%, but less than 10%
  - d. At least 10%, but less than 15%
  - e. At least 15%, but less than 20%
  - f. At least 20%, but less than 25%
  - g. At least 30%, but less than 40%
  - h. At least 40%, but less than 50%
  - i. At least 50%, but less than 60%
  - j. At least 60%, but less than 80%
  - k. At least 80%, but less than 100%
  - l. 100%
11. Select the response that reflects your belief that the following statement is TRUE: GENERALLY, employers are biased in favor of job applicants who have completed education traditionally, and against job applicants who have completed education online.

- a. Strongly Agree
- b. Agree
- c. Somewhat Agree
- d. Neither Agree, nor Disagree
- e. Somewhat Disagree
- f. Disagree
- g. Strongly Disagree

12. Select the response that reflects your belief that the following statement is TRUE:

- a. Job applicants who completed their education from selective colleges are better employee prospects than job applicants who completed their education from non-selective colleges.
- b. Strongly Agree
- c. Agree
- d. Somewhat Agree
- e. Neither Agree, nor Disagree
- f. Somewhat Disagree
- g. Disagree
- h. Strongly Disagree

13. Select the response that reflects your belief that the following statement is TRUE: Students attended college online instead of traditionally because of their ability/competence, not situational circumstances (e.g. restricted schedule due to family obligations and/or being employed full-time).

- a. Strongly Agree
- b. Agree
- c. Somewhat Agree
- d. Neither Agree, nor Disagree
- e. Somewhat Disagree
- f. Disagree
- g. Strongly Disagree

## Applicant Profiles

In this study, you will be viewing nine brief applicant profiles. These hypothetical profiles represent potential recent college-graduates applying for a newly created position with your organization. The position is as an entry level Human Resources Analyst and a Bachelor's degree is required. Please read each profile and then answer each of the following questions to the best of your ability.

### Job Description for Human Resources Analyst

A human resource analyst uses various techniques and computer programs to analyze data related to their organization's Human Resources Department. They collect, analyze, and use this data to provide management with valuable information on how to attract better candidates, how to better motivate current employees, how to address current staffing issues, and how to meet laws and regulations related to staffing.

Program Type:

**Traditional:** Most instruction is face-to-face permitting up to 29% web-based instruction.

**Hybrid:** Occasional instruction is face-to-face and 30%-79% instruction is covered online.

**Online:** At least 80% of course content is conducted online.

'Viable' denotes that you would advance this applicant further in the selection process (e.g., invite to written test, job related test, interview).

---

### ***Applicant 1:***

**This applicant earned a Bachelor's degree from a traditional college.**

Based on the applicant information above, please rate this applicant on the following:

1. I would invite this applicant for an interview.
  - a. 1 = Strongly Agree
  - b. 2 = Agree

- c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
2. I would hire this applicant.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
3. This is a viable candidate.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
- 

***Applicant 2:***

**This applicant earned a Bachelor's degree from a hybrid college.**

Based on the applicant information above, please rate this applicant on the following:

1. I would invite this applicant for an interview.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
2. I would hire this applicant.
- a. 1 = Strongly Agree
  - b. 2 = Agree

- c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
3. This is a viable candidate.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
- 

***Applicant 3:***

**This applicant earned a Bachelor's degree from an online college.**

Based on the applicant information above, please rate this applicant on the following:

1. I would invite this applicant for an interview.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
2. I would hire this applicant.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
3. This is a viable candidate.
- a. 1 = Strongly Agree
  - b. 2 = Agree

- c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
- 

***Applicant 4:***

**This applicant earned a Master's degree from a traditional college.**

Based on the applicant information above, please rate this applicant on the following:

1. I would invite this applicant for an interview.
    - a. 1 = Strongly Agree
    - b. 2 = Agree
    - c. 3 = Somewhat Agree
    - d. 4 = Neither Agree or Disagree
    - e. 5 = Somewhat Disagree
    - f. 6 = Disagree
    - g. 7 = Strongly Disagree
  
  2. I would hire this applicant.
    - a. 1 = Strongly Agree
    - b. 2 = Agree
    - c. 3 = Somewhat Agree
    - d. 4 = Neither Agree or Disagree
    - e. 5 = Somewhat Disagree
    - f. 6 = Disagree
    - g. 7 = Strongly Disagree
  
  3. This is a viable candidate.
    - a. 1 = Strongly Agree
    - b. 2 = Agree
    - c. 3 = Somewhat Disagree
    - d. 4 = Neither Agree or Disagree
    - e. 5 = Somewhat Disagree
    - f. 6 = Disagree
    - g. 7 = Strongly Disagree
-

***Applicant 5:***

**This applicant earned a Master's degree from a hybrid college.**

Based on the applicant information above, please rate this applicant on the following:

1. I would invite this applicant for an interview.
    - a. 1 = Strongly Agree
    - b. 2 = Agree
    - c. 3 = Somewhat Agree
    - d. 4 = Neither Agree or Disagree
    - e. 5 = Somewhat Disagree
    - f. 6 = Disagree
    - g. 7 = Strongly Disagree
  
  2. I would hire this applicant.
    - a. 1 = Strongly Agree
    - b. 2 = Agree
    - c. 3 = Somewhat Agree
    - d. 4 = Neither Agree or Disagree
    - e. 5 = Somewhat Disagree
    - f. 6 = Disagree
    - g. 7 = Strongly Disagree
  
  3. This is a viable candidate.
    - a. 1 = Strongly Agree
    - b. 2 = Agree
    - c. 3 = Somewhat Agree
    - d. 4 = Neither Agree or Disagree
    - e. 5 = Somewhat Disagree
    - f. 6 = Disagree
    - g. 7 = Strongly Disagree
- 

***Applicant 6:***

**This applicant earned a Master's degree from an online college.**

Based on the applicant information above, please rate this applicant on the following:

1. I would invite this applicant for an interview.
  - a. 1 = Strongly Agree
  - b. 2 = Agree



- c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
2. I would hire this applicant.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
3. This is a viable candidate.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree

---

***Applicant 7:***

**This applicant earned a Doctorate degree from a traditional college.**

Based on the applicant information above, please rate this applicant on the following:

1. I would invite this applicant for an interview.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
2. I would hire this applicant.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree

- e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
3. This is a viable candidate.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
- 

***Applicant 8:***

**This applicant earned a Doctorate from a hybrid college.**

Based on the applicant information above, please rate this applicant on the following:

1. I would invite this applicant for an interview.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
2. I would hire this applicant.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree
  - e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
3. This is a viable candidate.
- a. 1 = Strongly Agree
  - b. 2 = Agree
  - c. 3 = Somewhat Agree
  - d. 4 = Neither Agree or Disagree

- e. 5 = Somewhat Disagree
  - f. 6 = Disagree
  - g. 7 = Strongly Disagree
- 

***Applicant 9:***

**This applicant earned a Doctorate from an online college.**

Based on the applicant information above, please rate this applicant on the following:

1. I would invite this applicant for an interview.
    - a. 1 = Strongly Agree
    - b. 2 = Agree
    - c. 3 = Somewhat Agree
    - d. 4 = Neither Agree or Disagree
    - e. 5 = Somewhat Disagree
    - f. 6 = Disagree
    - g. 7 = Strongly Disagree
  
  2. I would hire this applicant.
    - a. 1 = Strongly Agree
    - b. 2 = Agree
    - c. 3 = Somewhat Agree
    - d. 4 = Neither Agree or Disagree
    - e. 5 = Somewhat Disagree
    - f. 6 = Disagree
    - g. 7 = Strongly Disagree
  
  3. This is a viable candidate.
    - a. 1 = Strongly Agree
    - b. 2 = Agree
    - c. 3 = Somewhat Agree
    - d. 4 = Neither Agree or Disagree
    - e. 5 = Somewhat Disagree
    - f. 6 = Disagree
    - g. 7 = Strongly Disagree
-

APPENDIX B  
HYPOTHESES PREDICTIONS

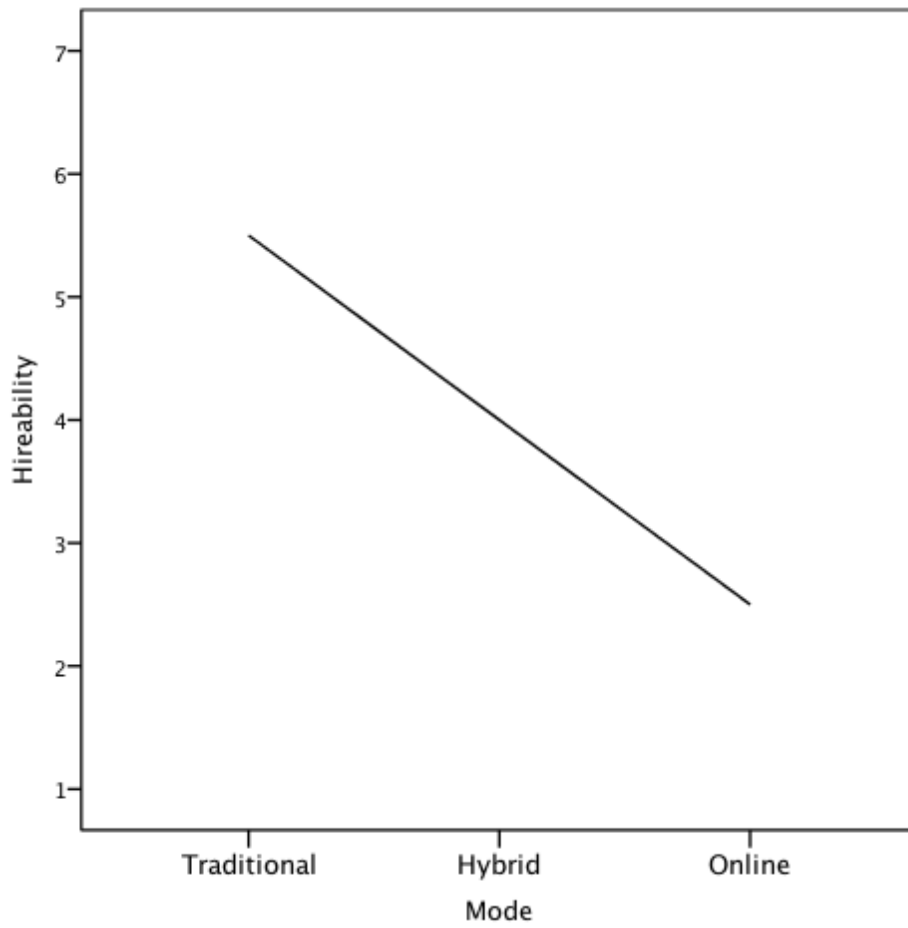


Figure 1. The Predicted Effect of Mode of Education on Hireability

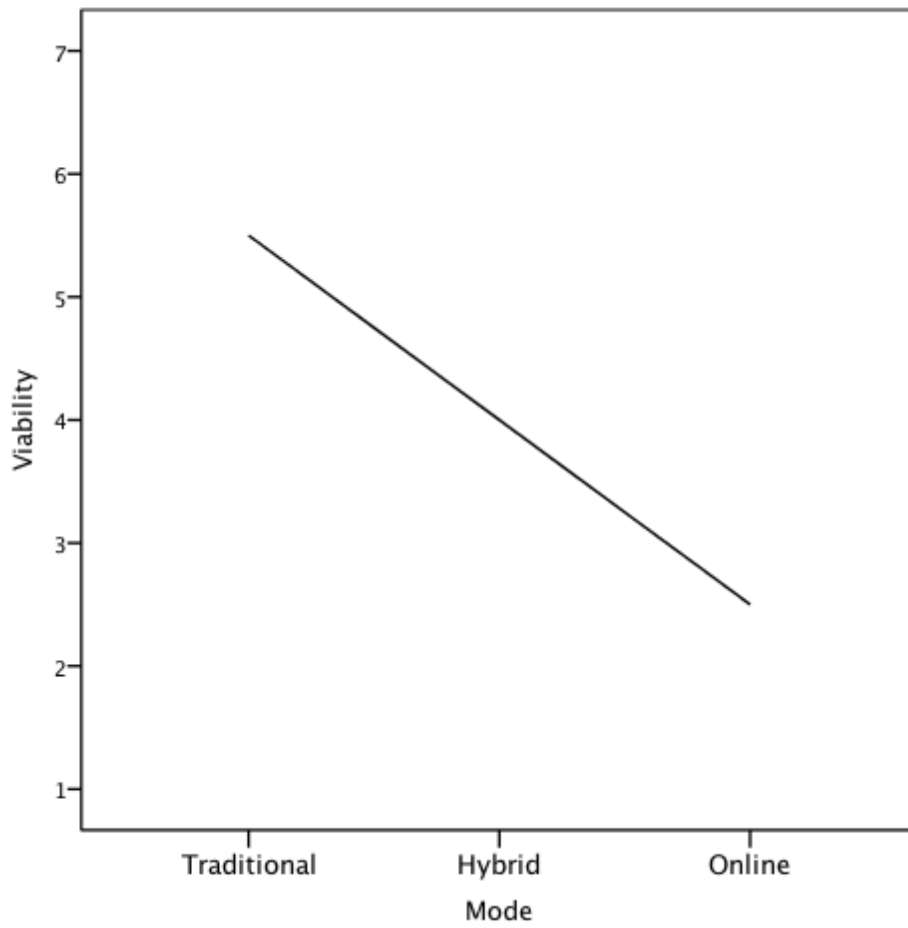


Figure 2. The Predicted Effect of Mode of Education on Viability

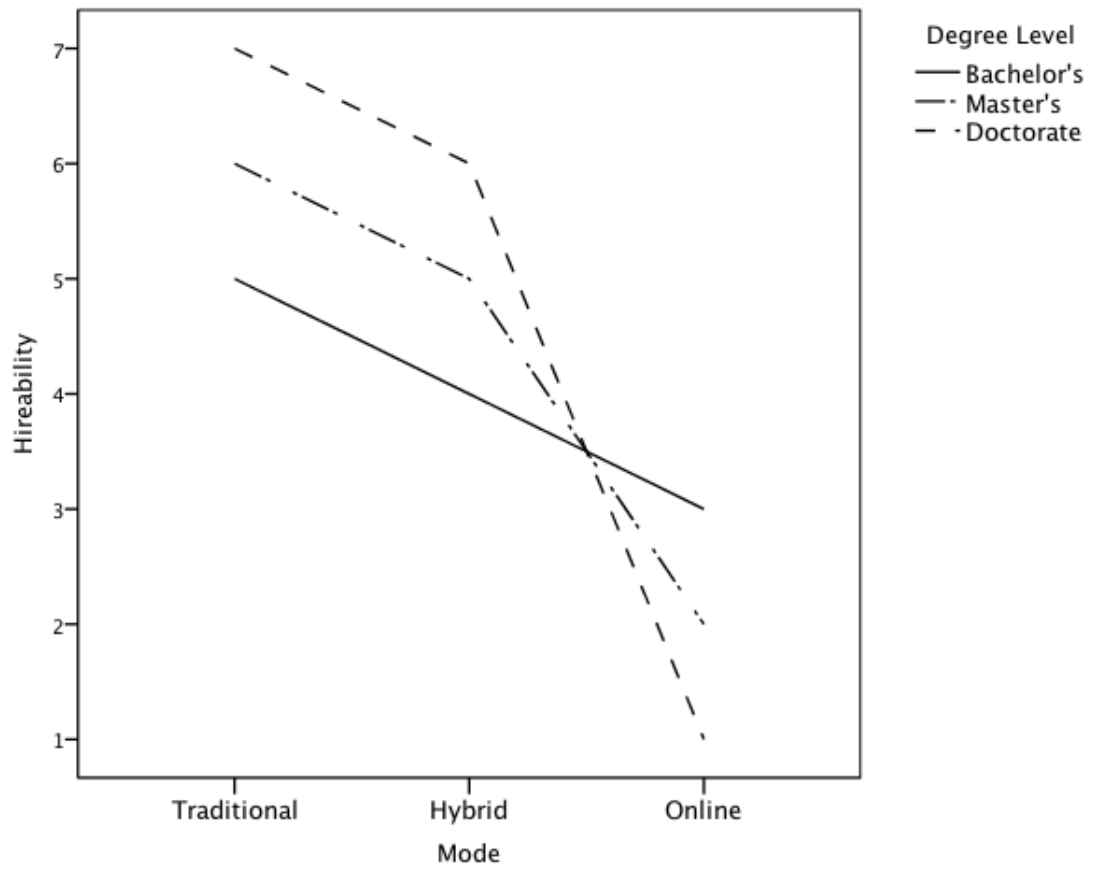


Figure 3. The Predicted Effect of Mode of Education and Degree Level on Hireability

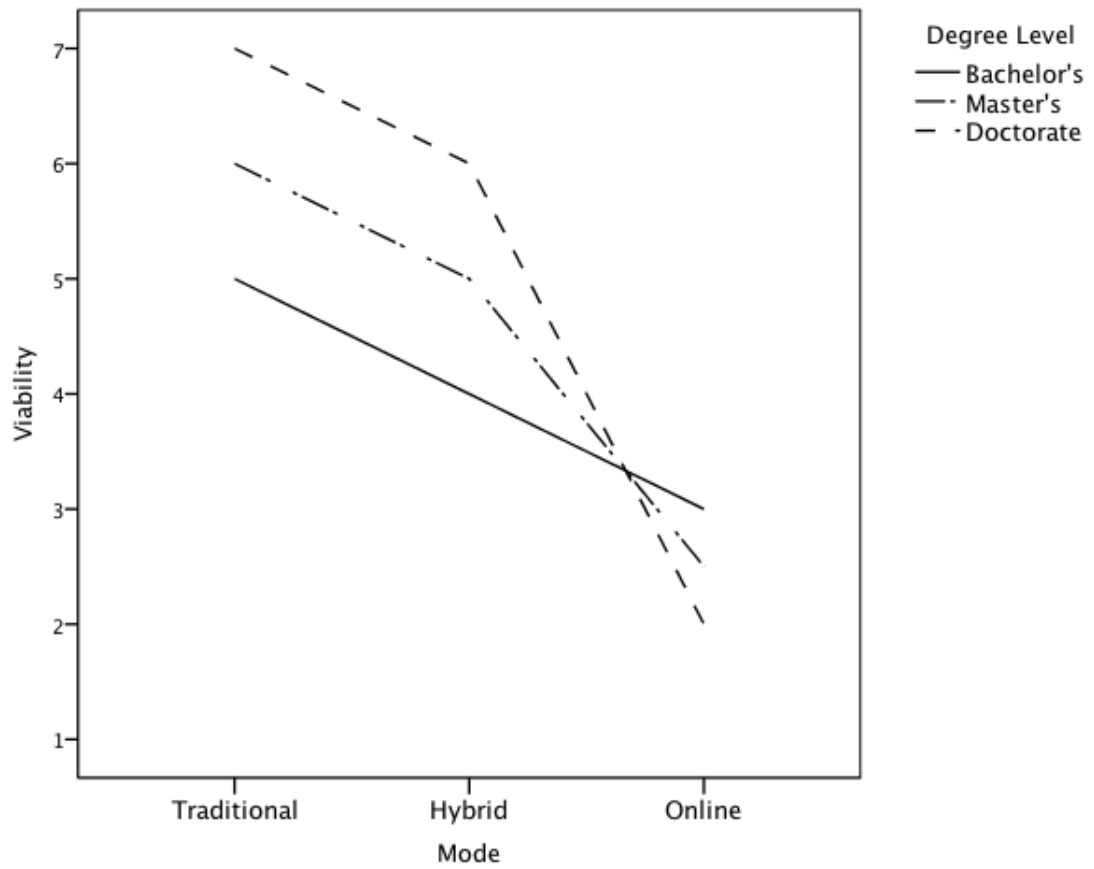


Figure 4. The Predicted Effect of Mode of Education and Degree Level on Viability



APPENDIX C  
ANALYSES

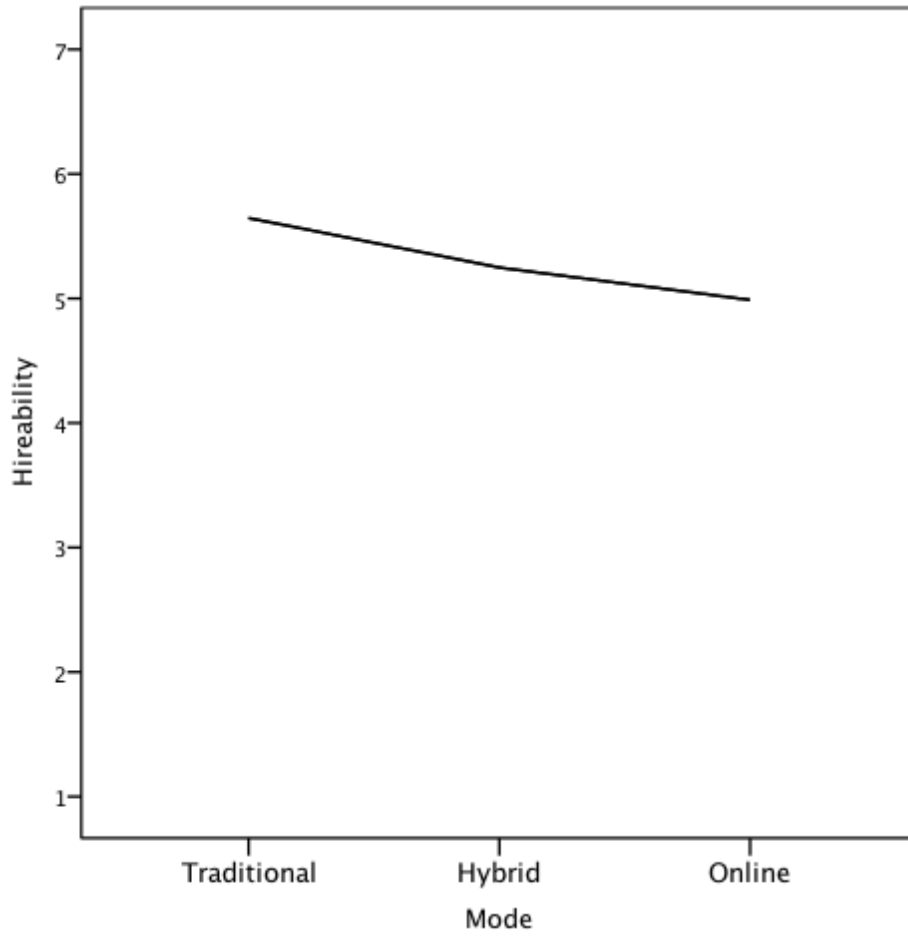


Figure 5. Effect of Mode of Education on Hireability

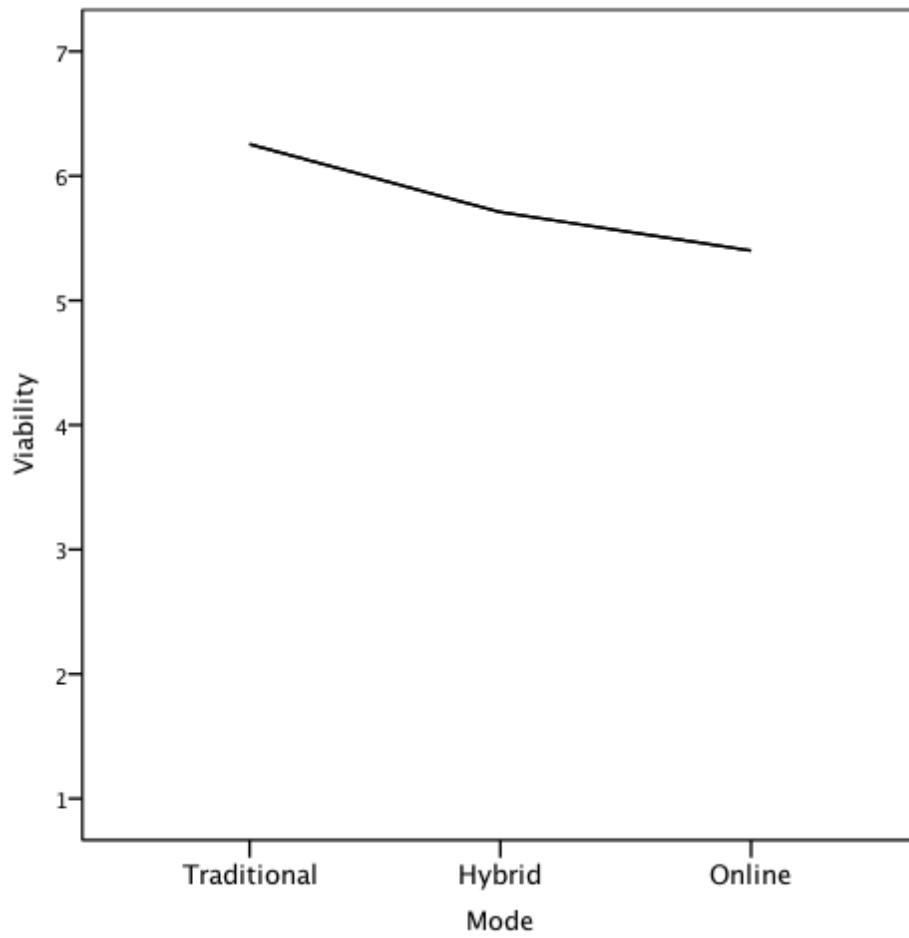


Figure 6. Effect of Mode of Education on Viability

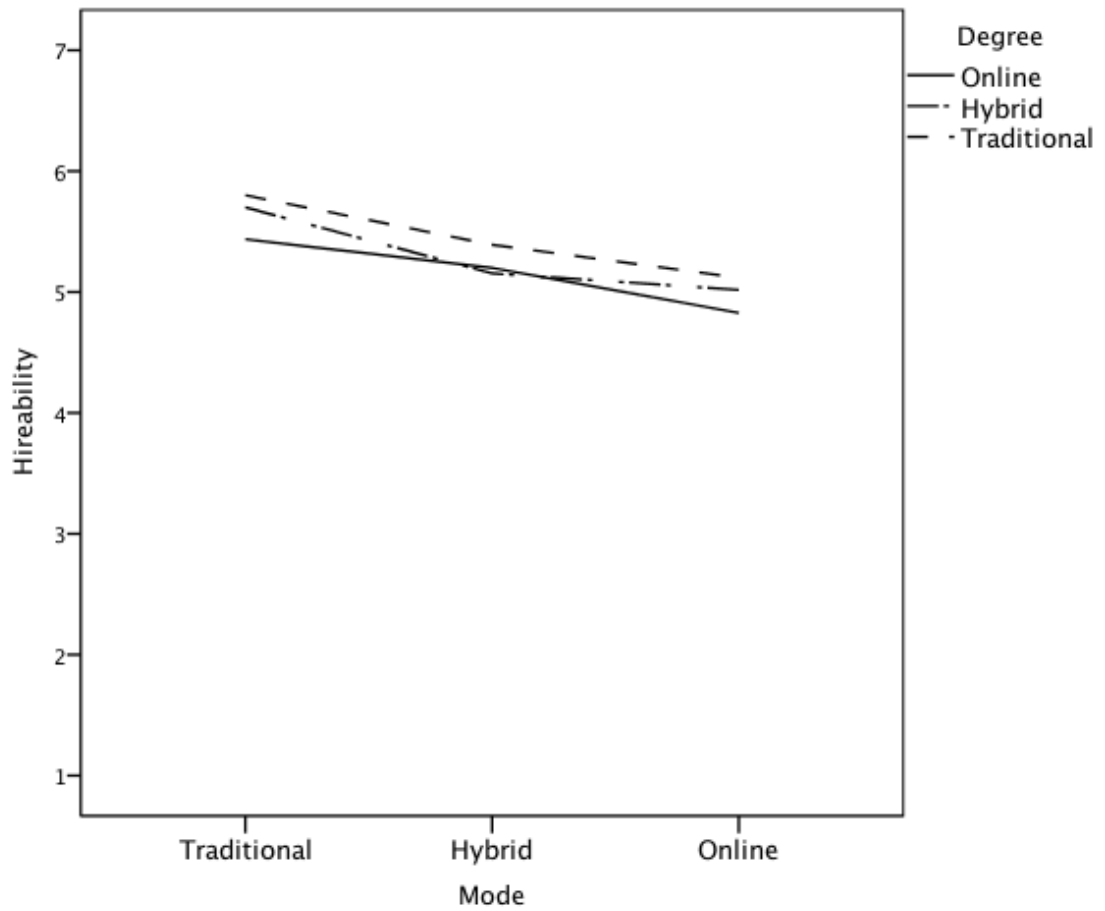


Figure 7. Effect of Mode of Education and Degree Level on Hireability

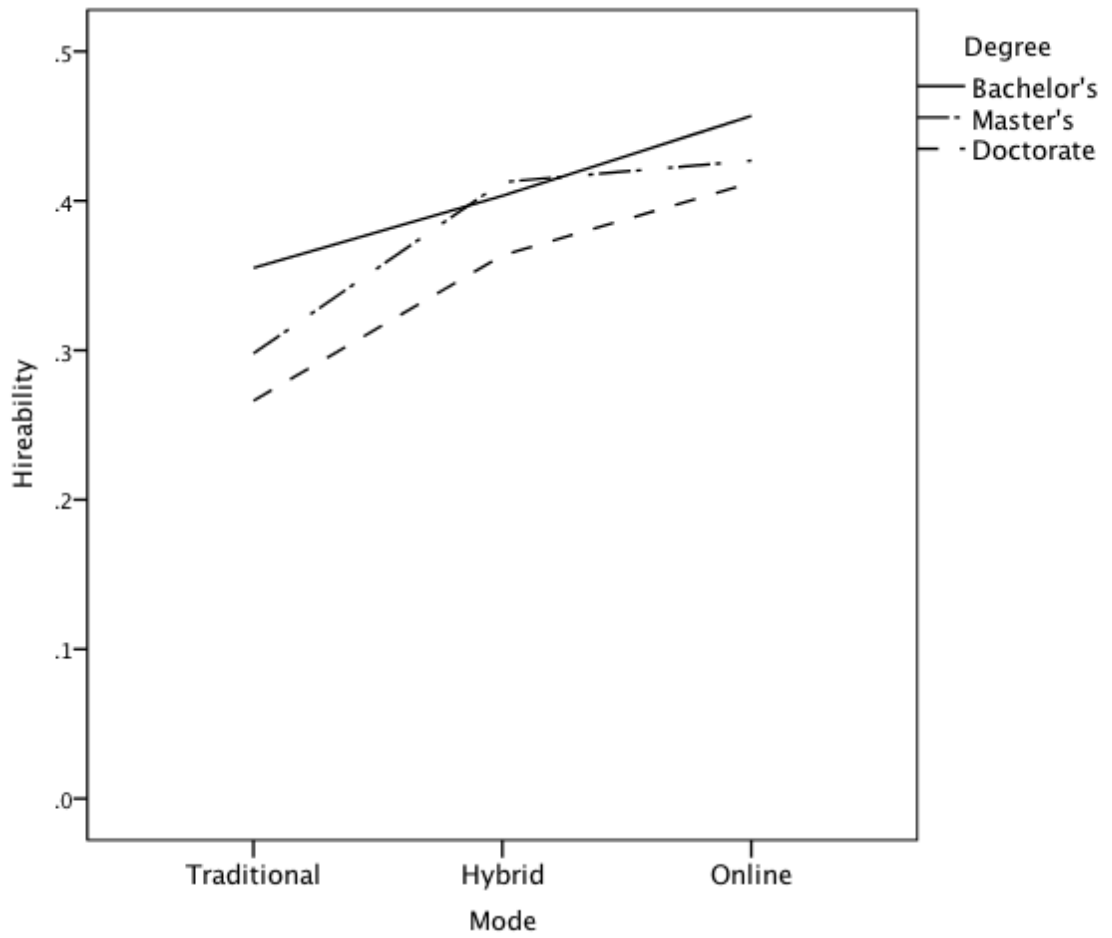


Figure 8. Effect of Mode of Education and Degree Level on Hireability with Log Transformed Variables

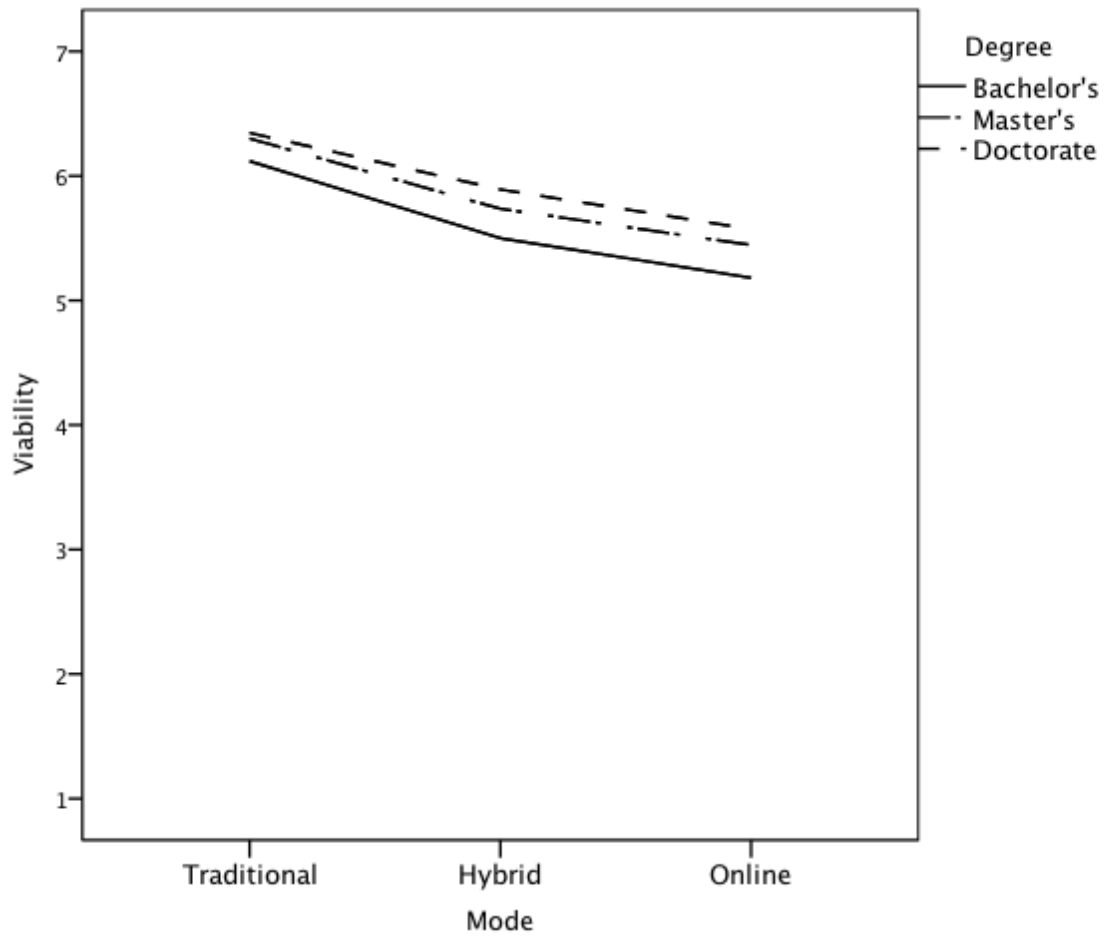


Figure 9. Effect of Mode of Education and Degree Level on Viability

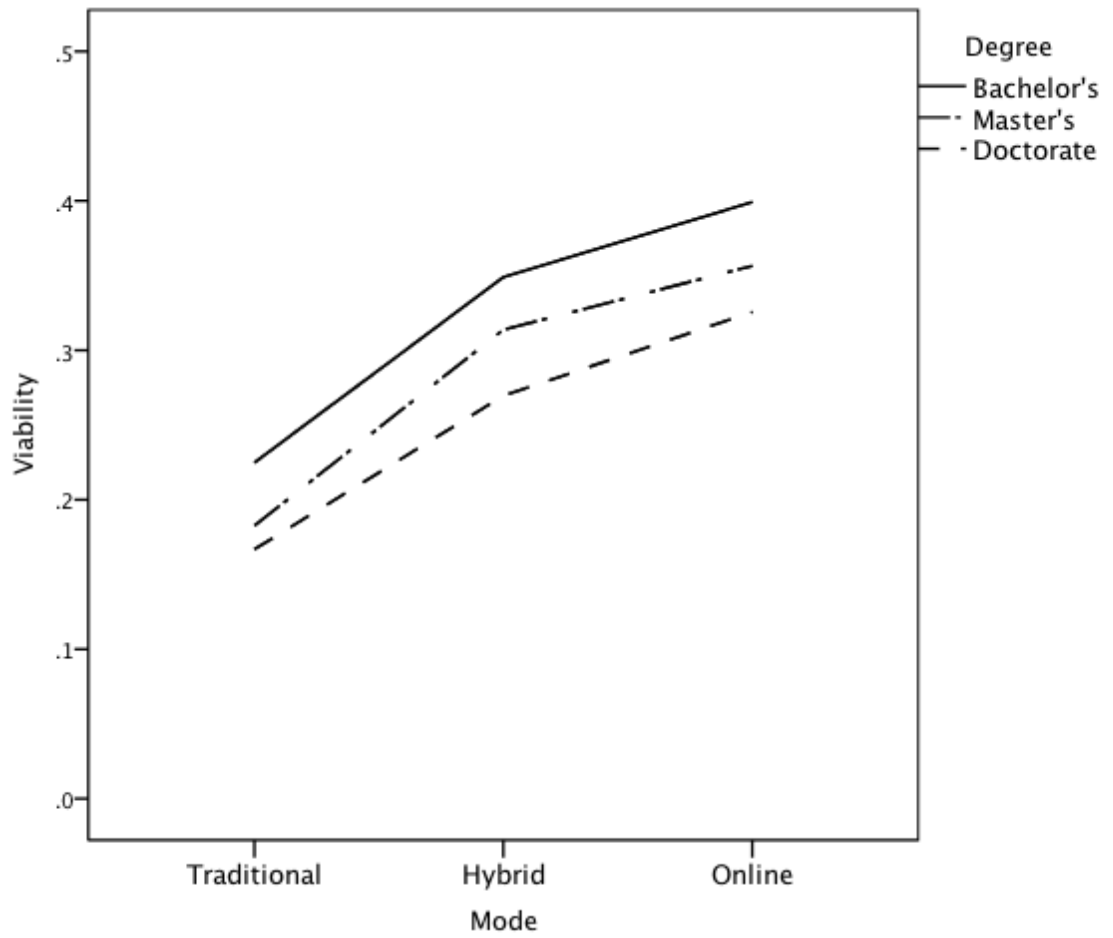


Figure 10. Effect of Mode of Education and Degree Level on Viability with Log Transformed Variables

APPENDIX D  
SAMPLE RECRUITMENT EMAIL



Hello! I am Benjamin Safara; a graduate student at California State University, San Bernardino. I would like to request your participation in a survey for research I am completing to earn a Master's of Science in Industrial-Organizational Psychology degree at California State University, San Bernardino. Please complete the following survey if you meet the following criteria: currently employed, have earned a Bachelor's degree, and you make judgment calls to move forward with applicants (i.e., subjectively screen resumes/applications) in the hiring process for your employer. Also, please extend the link to anyone who meets the aforementioned criteria.

The following study has been developed to investigate how employers perceive job applicants based on a variable of characteristics. This study is being conducted by Benjamin Nathaniel Safara under the supervision of Professor Kenneth Shultz, Professor of Psychology, California State University, San Bernardino. This study has been approved by the Psychology Subcommittee of the Institutional Review Board, California State University, San Bernardino.

The study is survey-based and voluntary, so you can skip or not answer any questions, and you may withdraw from the survey at any time. Participation poses no foreseeable risks. It will take approximately 25-30 minutes to complete. Data will be kept confidential and no identifiers of participants will be disclosed. Participants who include an email address will be entered in a lottery to win a \$100 gift card for Amazon.com. Results of the study can be obtained from Professor Kenneth Shultz at <mailto:kshultz@csusb.edu> [kshultz@csusb.edu](mailto:kshultz@csusb.edu) after December 1, 2016.

Please direct any questions to:

Dr. Kenneth Shultz  
Professor of Industrial-Organizational Psychology  
California State University, San Bernardino  
(909)-537-5484  
[KShultz@csusb.edu](mailto:KShultz@csusb.edu)

Family, friends, contacts, and connections! I would like to request your participation in a survey for research I am completing to earn a Master's of Science in Industrial-Organizational Psychology degree from California State University, San Bernardino. Please complete the following survey if you meet the following criteria: currently employed, have earned a Bachelor's degree, and you make judgment calls to move forward with applicants (i.e., subjectively screen resumes/applications) in the hiring process for your employer. Also, please extend the link to anyone who meets the aforementioned criteria.

The following study has been developed to investigate how employers perceive job applicants based on a variety of characteristics. This study is being conducted by Benjamin Nathaniel Safara under the supervision of Professor Kenneth Shultz, Professor of Psychology, California State University, San Bernardino. This study has been approved by the Psychology Subcommittee of the Institutional Review Board, California State University, San Bernardino.

It will take approximately 25-30 minutes to complete. Data will be kept confidential and no identifiers of participants will be disclosed. Participants who include an email address will be entered in a lottery to win a \$100 gift card for Amazon.com. Results of the study can be obtained from Professor Kenneth Shultz at <mailto:kshultz@csusb.edu> [kshultz@csusb.edu](mailto:kshultz@csusb.edu) after December 1, 2016.

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APPENDIX E  
INFORMED CONSENT

**Participant Informed Consent**

**The following study has been developed to investigate how employers perceive job applicants based on the applicants' mode of education and the level of degree they have obtained when applying to an open position. This study is being conducted by Benjamin Nathaniel Safara under the supervision of Professor Kenneth Shultz, Professor of Psychology, California State University, San Bernardino. This study has been approved by the Psychology Subcommittee of the Institutional Review Board, California State University, San Bernardino. There stamp of approval can be found on this page.**

**Please complete the following survey if you meet the following criteria: currently employed, have earned a Bachelor's degree, and you make judgment calls to move forward with applicants (i.e., subjectively screen resumes/applications) in the hiring process for your employer.**

**The study is survey-based and voluntary, so you can skip or not answer any questions, and you may withdraw from the survey at any time with penalty. Participation poses no foreseeable risks. It will take approximately 10-15 minutes to complete. Data will be kept confidential and no identifiers of participants will be disclosed. Participants who include an email address will be entered in a lottery to win a \$100 gift card for Amazon.com. Results of the study can be obtained from Professor Kenneth Shultz at [kshultz@csusb.edu](mailto:kshultz@csusb.edu) after December 1, 2016.**

**Results of the study will be used for Nathaniel Safar's Master's thesis and will be reported in group format only. Confidential data will be stored in password protected computers where only researchers will have access. All data will be destroyed 5 years after any publication of group results at professional conferences or in professional journals.**

**If you have any concerns about the study you may also contact the Psychology Subcommittee of the Institutional Review Board, California State University, San Bernardino at [www.psych.irb@csusb.edu](http://www.psych.irb@csusb.edu)**

**Please direct any questions to:**

**Benjamin Safara  
Student of Industrial-Organizational Psychology  
California State University, San Bernardino  
(661)-916-9529  
[bensafara@gmail.com](mailto:bensafara@gmail.com)**

APPENDIX F  
INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

**Human Subjects Review Board  
Department of Psychology  
California State University,  
San Bernardino**

**PI:** Shultz & Safara  
**From:** Michael R. Lewin  
**Project Title:** The Effect of Mode of Education and Degree Level on Employer Perceptions of Applicants' Hireability  
**Project ID:** H-16SU-04  
**Date:** 8/2/16

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**Disposition: Administrative Review**

Your project H-16SU-04 has been approved. This approval is valid until 8/2/17.

**Good luck with your research!**



Michael R. Lewin, Co-Chair  
Psychology IRB Sub-Committee

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