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AI AND ALGORITHMIC FAIRNESS IN CONSUMER LENDING: THE CASE OF "UPSTART"

Naveen Gudigantala, University of Portland

ABSTRACT

It is estimated that approximately 45 million Americans don't have access to bank quality credit. This work discusses the case of a fin-tech company called Upstart, which specializes in using AI/ML based platform to provide credit to traditionally underserved populations. Upstart's AI platform uses alternative data in addition to the traditional FICO scores in its algorithms. This alternative data includes borrowers' educational data and occupational data. Upstart's data shows that a majority of traditionally underserved populations was able to obtain more credit and at better terms using their credit scoring system. There is clearly a promise of using AI/ML systems for expanding credit to underserved populations, but under the promise lurks dangers of misuses of such technologies. This work also discusses the issues of algorithmic fairness, policy status, algorithmic transparency and compliance, and offers directions for future research.

INTRODUCTION

Issues surrounding the fairness of algorithms are attracting much attention from the researchers (Saxena et al., 2019). The goal of this paper is to discuss the opportunities and challenges in using alternative data for credit scoring modeling. The case study uses a fin-tech company "Upstart Network, Inc." (called "Upstart" from here on) and an analysis of Upstart's AI practices in lending to address the following questions:

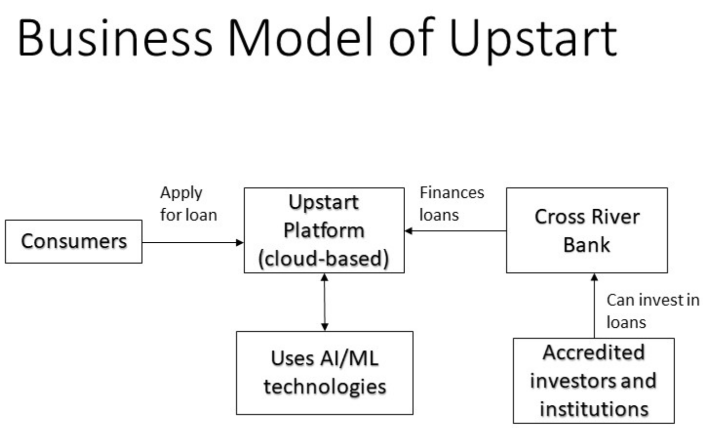
- How does fin-tech business model work in consumer lending?
- How are AI & ML used in fin-tech industry with regards to consumer lending?
- How do different approaches to the development of ML models help or hinder fairness in lending?
- What benefits can consumers get when AI models are used for underwriting?
- What are the limitations of AI models?
- How do transparency and model compliance efforts benefit fin-tech companies?
- What are the policy issues concerning credit scoring models using alternative data?
- Is the alternative data used in this context really generating fair AI algorithms?
- Further issues in the use of AI/ML systems in the fin-tech industry regarding consumer credit

This case study is intended for researchers in AI and financial services, students learning analytics/AI, and for practitioners doing AI/Data science work. The issues discussed in this case will help students better evaluate the implications of models they learn to create as part of analytics curriculum; for the researchers to continue investigating the problems raised in this study; and for data science practitioners to reflect on issues of algorithmic fairness.

UPSTART'S BUSINESS MODEL

Upstart is an online lending platform, launched by ex-Google employees in 2014, with an aim to provide credit to people with limited credit or work history. Figure 1 illustrates the business model of Upstart. Consumers in need of credit approach Upstart, a website embedded with Artificial Intelligence (AI)/ Machine Learning (ML) technologies, to inquire and create a loan application. Upstart automated the underwriting technology for credit scoring, meaning, given the information provided by the consumer, a model will decide whether to give or reject loan and loan terms. The use of a model – as opposed to a human – for decision-making refers to AI and the model itself may be developed using one or many machine learning (ML) algorithms. The Upstart's website is cloud-based, meaning the consumer data and underwriting technologies operate on the Internet by providing online services to the consumers. This type of cloud service is an example of software-as-a-service (SaaS). Upstart is essentially a middleman between Cross River Bank, a bank which issues loans, and the consumer. Because Upstart's underwriting technology is used by Cross River Bank, we regard Upstart as a financial technology company ("fin-tech" in short). Accredited investors and institutions are given an opportunity to invest in the loans thus disbursed by Cross River Bank and Upstart to make money (Upstart, 2017).

Figure 1. Business Model of Upstart



PROBLEM ADDRESSED BY UPSTART FOR CONSUMER LENDING

Upstart learned from an early study that although 83% of Americans have never actually defaulted on a loan, only 45% have access to bank-quality credit. Upstart notes this "45% vs. 83% gap" as unfair and sets out to create an AI platform that can make ingenious use of alternative data in expanding credit to underserved groups (Girouard, 2019).

Girouard (2019), the CEO of Upstart, suggests that FICO score - a measure of credit risk available through credit reporting agencies such as Equifax, Experian, and Transunion – is limited in its predictive ability of consumer risk because it focuses exclusively on a consumer's past credit history. Therefore, traditional lenders who rely almost exclusively on FICO score and traditional modeling techniques ignore some important predictive information about potential borrowers. This is one of the reasons contributing to the "45% vs. 83% gap" (Girourad, 2019).

To overcome this problem, Upstart's underwriting model, in addition to using FICO scores, uses *alternative data for borrowers, such as educational attainment and work history as predictors*. Using the model with alternative data, Upstart claimed that 27% more loans are approved which also lowered interest rates by an average of 3.57% (Girourad, 2019). Although Upstart used education and work history as alternative data, other pieces of data such as *payment history concerning rent, electricity, gas and telecom bills, repayments to payday lenders* can be considered as alternative data. The major U.S. credit reporting agencies are initiating attempts to include alternative data in their credit scoring system, but they face several hurdles in fully capturing this information (Malik, 2019). Therefore, opportunities emerge for companies such as Upstart to ascertain creditworthy individuals with near prime FICO scores and create a business model around such customers.

A BRIEF OVERVIEW OF UPSTART'S UNDERWRITING METHODOLOGY FROM ML PERSPECTIVE

The business problem in this context is to assess the creditworthiness of a consumer. When a consumer applies, two decisions need to be made: (1) whether to give a loan or not? and, (2) if a loan is given, what are the terms? The terms refer to amount of loan, annual percentage rate (APR,) etc. A machine learning (ML) model is developed which is essentially a mathematical model for decision-making purposes. Table 2 shows some examples of elements that go into the model development process: the target variables, traditional predictors, predictors including alternative data, and possible modeling techniques. Upstart predictors include traditional variable such as, FICO score and length of credit in years, but also alternative data such as highest degree earned, area of study, and job history details (Upstart, 2017).

Table 1
ELEMENTS OF ML MODES FOR CREDIT RISK MODELING

Target variable	Traditional predictors	Predictors including alternative data	Possible modeling techniques
Give a loan/Reject a loan	FICO score, length of credit in years	FICO score, length of credit in years, highest degree earned, area of study, job history	Logistic regression, K-nearest neighbors, Classification Trees, Neural Networks, etc.
The Annual Percentage Rate (APR)	FICO score, length of credit in years	FICO score, length of credit in years, highest degree earned, area of study, job history	Multiple regression, K-nearest neighbors, Regression Trees, Neural Networks, etc.

HOW DO DIFFERENT APPROACHES TO THE DEVELOPMENT OF ML MODELS HELP OR HINDER FAIRNESS IN LENDING?

In credit risk modeling, an important and universally used predictor is FICO score/credit score. The FICO scores range from 300 to 850. Many lenders consider borrowers with FICO scores of at least 720 to be "prime". The next classification, "near-prime" generally falls in an interval of mid-to-high 600s to the low 700s. The third classification of "sub-prime" includes borrowers whose scores fall below 620 (Andriotis, 2016). The FICO score distribution of U.S. population as of April 2018 is shown in Table 2. As per this data, the individuals with credit scores between 300-600 don't qualify for bank-quality credit (Dornhelm, 2018). Individuals with credit scores above 700 (58.2% of population) usually qualify for best possible terms. The "near prime" from this table can be loosely categorized as the percentage of people between scores 600 and 700, and they stand at 22.6% of U.S. population. This segment of population can be considered as "traditionally underserved" in terms of credit.

Table 2
DISTRIBUTION OF FICO SCORES OF U.S. POPULATION (DORNHELM, 2018)

FICO Score	Percentage of U.S. population
300-600	19.1%
600-649	9.6%
650-699	13%
700-749	16.2%
750 and above	42%

What is the problem with FICO score as an important predictor? The FICO credit scores are unduly impacted by the length of credit history of an individual. Even the other components that go into the calculation of FICO scores such as payment history, new credit, credit mix, and credit utilization also favor individuals with longer credit history. In conclusion, FICO scores inherently create bias against younger borrowers or recent immigrants with fewer accounts (called "thin files"), lower credit limits, and fewer years of making payments. These types of borrowers have substantially lower credit scores compared to older borrowers. Another interesting point noted by Upstart is that a majority of traditional lenders use the length and breadth of borrowers' credit files as independent criteria in making determination of loans (Upstart, 2017). Please see the data in table 3 and a scatterplot in figure 2 showing the positive linear relationship between Age and FICO score (Dornhelm, 2018).

Table 3
DATA OF AGE AND CREDIT SCORE AS OF APRIL 2018 (DORNHELM, 2018)

Age Range of U.S. Individual	Average FICO Score
18-29	659
30-39	677
40-49	690
50-59	713
60+	747

So what happens if a model predominantly uses FICO score to assess the creditworthiness of an individual? Upstart conducted a study in September 2016 with a random sample of their borrowers during the years 2014-16. It used two models to do the comparison: a limited model with no alternative data (used FICO score and length of credit history) and an Upstart's model with alternative data. The results are presented in table 4 and show that the use of alternative data in credit modeling results in better credit terms and also improves the predictive accuracy of the model (Upstart, 2017).

Figure 2. Relationship between Age and Credit Score as of April 2018 (Reference: Dornhelm, 2018)

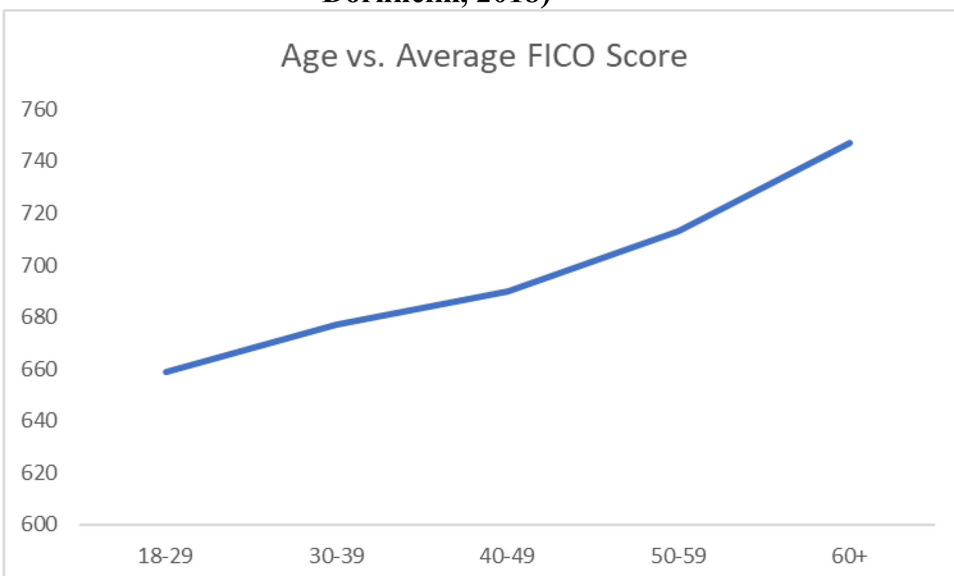


Table 4 RESULTS FROM COMPARISON OF CREDIT MODELS BY UPSTART	
Limited Model (No alternative data; use of traditional variables)	Upstart Model (traditional variables plus alternative data)
Model recommended average APR of 23.5%	Model recommended average APR of 16.7%
Model has lower R^2 for predicting default rate	Model has higher R^2 for predicting default rate

WHAT BENEFITS DID UPSTART CONSUMERS GET WHEN AI MODELS ARE USED FOR UNDERWRITING?

Dave Girouard (2019), CEO of Upstart, presented the following benefits of using AI system to the House Committee Taskforce:

1. Upstart's models approved 27% more consumers and lowered interest rate by an average of 3.57% compared to traditional models.

2. For a near-prime consumers (620-660 FICO), Upstart's models approved 95% more consumers and reduced interest rates by an average of 5.42% compared to traditional models.
3. Upstart's models provided higher approval rates and lower interest rates for every traditionally underserved demographic.

Upstart reported to have facilitated 80,000 loans totaling over $1 billion. The loans typically fall in the range of $1,000 to $50,000 with repayment periods between 3 and 5 years. The average age of the borrower is 28 years with the APR rates ranging between 4% and 25.9% (Upstart, 2017).

An interesting aspect of these statistics is that the average age of borrower for Upstart's services is 28 years. What do Upstart's consumers do with this money? A majority of Upstart's borrowers paydown higher interest credit card balances, use them to consolidate payday loans, reduce student loans, or to pay tuition for graduate education (Upstart, 2017).

WHAT ARE THE LIMITATIONS OF AI MODELS USED BY UPSTART?

Any AI model that is developed within 'certain constraints' will not work well outside of that specific environment. In this instance, Upstart appears to focus on relatively young borrowers with limited credit history but good educational background and work history. Looking at it from another perspective, Upstart's models focus more on the future financial potential of their borrowers – mostly appearing to be students and recent graduates – than the traditional models which look at the past credit history of borrowers. Therefore, Upstart (2017) acknowledges that their underwriting models may not be equally predictive across all demographic groups, meaning that the benefits similar to those offered by Upstart to their "thin file" consumers may not be as attractive to older borrowers.

HOW DO TRANSPARENCY/MODEL COMPLIANCE EFFORTS BENEFIT FIN-TECH COMPANIES?

This section highlights how proactively working with regulators and good faith efforts in maintaining transparency can yield good results, which further boost the competitive advantage of companies. The government regulator in the field of consumer lending is the Consumer Financial Protection Bureau (CFPB). Prior to launching their automated lending platform, Upstart proactively approached CFPB and held discussions on appropriate ways to measure bias. Upstart considered CFPB's feedback in developing automated tests and shared the results of how their credit decisions have positively benefited underserved groups on a routine basis. Upstart also created a model compliance program which performs regular fair lending testing of its underwriting model. This is important because AI models may change frequently. Upstart agreed to notify CFPB prior to adding any new variables to their model. Upstarts' compliance program is monitored through internal and external processes and audits. They also train employees on maintaining compliance. Further, if any of the automated results show bias, Upstart agreed to take appropriate corrective action as necessary (Upstart, 2017).

Years of good faith efforts by Upstart have resulted in CFPB awarding a "no-action" letter to Upstart, a first such letter issued by the regulator (Noto, 2017). Companies launching new financial products can request for such letters and granting of "no action" letter in this context means that CFPB will not initiate any enforcement or supervisory action against Upstart's automated model in regard to the Equal Credit Opportunity Act (ECOA) and its implementing regulation B (Noto, 2017).

A "no-action" letter helps Upstart to continue the use of their automated underwriting AI model without any regulatory uncertainty. More than that, it will serve as a signal for their fair business practices, which will boost their competitive positioning in the market.

POLICY ISSUES CONCERNING CREDIT SCORING MODELS USING ALTERNATIVE DATA

Where do lawmakers stand on the use of alternative data in credit scoring? Recently, the United States House launched a bipartisan taskforce on financial technology headed by Congressman Steven Lynch. The Congressman Lynch said, "the lives of consumers are changing with user-friendly financial service apps but these emerging technologies come with vulnerabilities and the need to reevaluate our consumer protection standards." (U.S. House Committee on Financial Services, 2019). The committee held its first hearing on June 25, 2019 and is expected to guide Congress in its policymaking. The Wall Street Journal reported that "the Government Accountability Office, the independent watchdog arm of Congress, recommended in December that financial regulators provide clearer guidance to lenders about how to use alternative data in the underwriting process, something that hasn't yet happened" (Hayashi, 2019). Therefore, in the absence of regulatory policy making pertaining to the use of alternative data, the burden is on the financial services industry to prove that they have not violated any provisions of the Equal Credit Opportunity Act (ECOA) and its implementing regulation B. This may be a huge risk, which partly explains why many of the major lenders are hesitant to innovate with alternative data (Girouard, 2019).

IS THE ALTERNATIVE DATA USED IN THIS CONTEXT REALLY GENERATING FAIR AI ALGORITHMS?

In assessing fairness of AI algorithms, it is important to use the provisions of the Equal Credit Opportunity Act (ECOA) and its implementing regulation B. As per ECOA, certain variables are prohibited from being used by creditors to make decisions on credit. These variables are: race, religion, sex, age, color, national origin, marital status, receipt of public assistance, and exercise of certain legal rights (CFPB consumer laws, 2013). However, the use of education and occupation in making a credit decision is debatable (Hayashi, 2019). The ECOA uses two principal theories when assessing liability: disparate treatment and disparate impact. Disparate treatment refers to a creditor's use of prohibited variables such as race or sex in treating an applicant differently. Disparate impact refers to the adverse impact generated by the use of creditors' practices on members of protected class (CFPB consumer laws, 2013).

To assess the fairness of Upstarts' algorithms using alternative data, we could examine if *education of a borrower* is really a fair variable and not a prohibited variable. As per the U.S. census data, the percentage of people with at least Bachelor's degree among different race categories is: 33% among whites, 54% among Asians, 25% among African Americans, and 16% among Hispanics (Hayashi, 2019). This work used the United States census data and Bayes' theorem to compute probabilities of race of an applicant given they have at least a Bachelor's degree (United States Census Bureau, 2019; National Center for Educational Statistics, 2017). These probabilities are:

$$Probability\left(\frac{White}{Bachelors}\right) = 67.19\%$$
$$Probability\left(\frac{Asian}{Bachelors}\right) = 9.36\%$$
$$Probability\left(\frac{African\ American}{Bachelors}\right) = 9.76\%$$
$$Probability\left(\frac{Hispanic}{Bachelors}\right) = 8.57\%$$

A fin-tech company, even after not asking for racial information (a prohibited variable), if it knows that a borrower has at least a bachelor's degree, can very well predict how likely the borrower belongs to a race at an aggregate level. From the probabilities seen above, one can make a case that "education" may serve as "proxy for race" in the sense that using information on education may disproportionately favor some race group over others. Given the number of borrowers run into several hundred thousands, the above probabilities hold up really well, and thus creating question marks regarding the fairness of using education as a predictor variable. Similarly, many variables in alternative data may show strong correlations with prohibited variables under ECOA and thus creating regulatory risk factors for companies.

How about the use of social media data (photos and text posted in Facebook, Twitter, and Instagram), consumer purchase history, web browsing history as predictors in consumer lending models? Are they predictive of consumers' ability to repay? Do they introduce any bias which is indicative of disparate treatment and disparate impact? These issues need to be further investigated.

FURTHER ISSUES IN THE USE OF AI/ML SYSTEMS IN THE FIN-TECH INDUSTRY REGARDING CONSUMER CREDIT

Peter Waynard, Senior VP of Data Analytics at Equifax points to three issues that are of interest when using alternative data for making credit decisions: (1) The AI/ML systems used for credit scoring must be transparent and explainable, (2) alternative data used for modeling must meet the same high standards of data completeness and accuracy needed for data elements used in consumer reports, and (3) the fin-tech companies must demonstrate that the use of their AI algorithms do not create disparate impact prior to their platforms being used in the marketplace (Waynard, 2018).

The issue of algorithmic transparency and explainability is very important in credit scoring systems. Some algorithms such as classification and regression trees and multiple regression are inherently good at explaining the rationale behind the model recommendation whereas others such as Artificial neural networks are not. For some deep learning algorithms, even the modelers themselves may be unsure of the underlying variable structure that produced these results. Therefore, in the context of consumer credit, wherein the burden of proof lies with financial services companies to show no disparate impact, the use of explainable algorithms becomes important. Further research is needed to show which algorithms work better in this context.

The issues of data accuracy and completeness is very important for successful implementation of AI algorithms. However, government policies must first specify what are the acceptable variables in regards to the use of alternative data. If such alternative data doesn't have the same fidelity as the traditional data, then the use of alternative data introduces bias into the models. Further research is needed to assess which alternative variables are both fair and increase predictive accuracy of the models and also the best practices in managing such non-traditional data.

Third, to encourage innovation, financial services companies should be given an opportunity to illustrate the effectiveness of their new AI models in an artificial setting – called product sandboxes – prior to their release in the market place. To establish the accuracy of the models – and their consequent promise of granting bank-quality credit to underserved communities requires some beta testing. This testing may need the use of prohibited variables to show how the new models with alternative data don't discriminate against the protected classes. To drive innovation, policy makers have to provide certain protections to companies working on such innovations. The CFPB is conceptualizing guidelines in instituting the product sandbox mechanism, but much more research is needed to ensure that companies don't misuse such innovations.

In conclusion, the use of alternative data offers much promise in our efforts offer bank quality credit to millions of underserved Americans. Such promise is possible because of Big Data and the use of AI and ML technologies. However, there is also a great danger that lurks in the corner if companies don't exercise due diligence in employing this new generation of tools and technologies. This work attempts to show the efforts of an innovative company, Upstart, in making strides in the use of AI/ML to expand credit, and also given the challenges concerning this nascent phenomenon, calls for further research.

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THE SPACE INDUSTRY TAKES OFF: CAN SPACE LAW ADAPT?

Elizabeth R. McVicker, Metropolitan State University of Denver
Nina Radojevich-Kelley, Shenandoah University

ABSTRACT

The space industry has developed into a multi-billion dollar industry with global revenues reaching more than $385 billion with a prediction that the sector will surpass $1.5 trillion by 2040. Billionaire investors along with an array of mid-size entrepreneurs have focused efforts and attention on the opportunities that the space industry offers.

Concomitant with the commercialization of the space industry is a discussion as to whether or not changes and expansions to our regulatory and legal structures are needed. The foundation of space law is rooted in 20th-century international conventions, beginning with the Outer Space Treaty of 1967. The United Nations has adopted subsequent resolutions and the United States along with many of the 72 nations with active space program have approved legislation and regulations that apply to those programs. This paper will survey multiple current space endeavors as well as the existing legal structure that is known as "Space Law" with the aim of asking if the explosion of commercial space ventures calls for a change in the legal framework, international or domestic—or whether or not less regulation is better? This paper does not consider national security issues.

INTRODUCTION

The 21st century issued in a space industry that embraces multi-billion dollar commercial enterprises that include investments from billionaires such as Paul Allen, Jeff Bezos, Richard Branson and Elon Musk. These entrepreneurs have poured billions into the commercialization of the space race with ventures such as Space X's Falcon 9 (Musk), Blue Origin reusable New Shephard space vehicle (Bezos), Vulcan Aerospace's Stratolaunch Carrier Aircraft with payload rocket (Allen) and Virgin Galactic's SpaceShip Two (Branson). Likewise, other private sector investors have focused attention on the opportunities that the commercial space industry offers. Global revenues have increased from $175 billion in 2005 to more than $385 billion currently, with a prediction that the sector will surpass $1.5 trillion by 2040 (Higginbotham, 2018).

2017 was the fiftieth anniversary of the first international treaty overseeing space endeavors and a discussion ensued as to whether or not gaps exist between the expansion of the space industry and our legal framework. The Outer Space Treaty was adopted by the United Nations (U.N.) in 1967, a time when only the United States (U.S.) and the Soviet Union were capable of launching vehicles into space. The treaty declared space a demilitarized zone and focused on space as the "province of all mankind" (Outer Space Treaty, 1967).

As of 2013, eight countries had space launch capabilities (currently nine countries do and 72 countries possess space programs) (Dan, 2019). The U.N. prudently adopted a resolution in 2013 outlining how national legislation can comport with the Outer Space Treat and includes recommendations on national legislation relevant to the peaceful exploration and use of outer space (U.N., 2013). The resolution emphasizes "sustainable use" of outer space resources and discusses the responsibility that space nations have for supervising space activity originating in their territories.

Domestically, U.S. space law is codified in multiple laws beginning with the 1958 National Aeronautics and Space Act (NASA Act, 1958). Congress has ratified many laws since then culminating most recently with the 2015 U.S. Commercialization Space Launch Competitiveness Act, also known as the Spurring Private Aerospace Competitiveness and Entrepreneurship Act (SPACE Act), which specifically allows companies to mine inorganic resources from space (SPACE Act, 2015). While Congress wants to allow entrepreneurs to go to space and keep the bounties of their explorations, international law seems contrary to such endeavors.

The advancement in the space industry around the world has spurred a discussion as to whether or not the U.N., the U.S. or all countries with endeavors in space need to consider a new regulatory and legislative framework to keep up with international commercial ventures into space. Does the existing framework offer the right balance of regulation to protect third parties while continuing to entice investments and keep world, and other-worldly, peace.

This paper will provide an overview of the private ventures into space, providing case studies of current commercial space ventures. A survey and examination of the existing legal framework for space law, both internationally and domestically, will then question if the existing laws offer a robust and resilient legal and regulatory framework that provides regulatory certainty without regulatory burdens. The paper does not include a study of national security issues.

THE GROWTH OF SPACE

Historically, the space industry was known as a highly technical industry riddled with extraordinary complexity, high risk, and exorbitant costs. Endeavors in space were reserved strictly for big governments focused on space exploration, rather than commercialization. This was simply due to the cost prohibitive nature of flying into space. Fast forward sixty years and we find a new era of space pioneered not by large governments, but instead by private enterprise and astropreneurs focused on monetizing their space ventures to achieve success (Sibia, 2017).

To be more precise, the space industry has seen a dramatic boom over the past decade, but more specifically in the last 5 years. Global revenues have exploded from $175 billion in 2005, to nearly $385 billion in 2017, with an annual growth rate for the space industry at 7% (Higginbotham, 2018). Entrepreneurs have invested billions into ventures such as Space X, Blue Origin, Firefly, Planet Labs, OneWeb, Bigelow Aerospace, Ixion, Astranis and Axiom Space. Private angel investor groups have emerged, such as the Space Angel Network, as early stage space investing groups exclusively focused on space ventures and the space technology environment (Space Angel Network Website, 2019). In addition, organizations such as Techstars, a leading mentor-driven accelerator company in the United States, launched the Techstars Starburst Space Accelerator Program concentrating on funding the next generation of space technology ventures and frontier technologies (Techstars Website, 2019).

For most early stage investors, venture capitalists and private equity investors special attention has been placed on the emerging opportunities in the space industry appropriating space as the next ‘internet boom’. Global revenues for the sector are projecting $1.5 trillion by 2040 (Foust, 2019; Higginbotham, 2018). As of today, there are approximately 375 private start-ups involved in space, of which 176 were created from 2015 to present (Grush, 2019). Space start-ups have attracted more than $19 billion in funding from space angel investors, venture capitalists and various bootstrap methods since 2009, of which nearly $6 billion was funded over the last three years alone (Grush, 2019). Moreover, approximately 123 space companies have registered for a DUNS number which is a requirement for companies seeking public funding from private investors (Grush, 2019). In fact, nearly $1.7 billion was invested in space ventures in 2017 alone, compared to $10 billion in total from 2000-2016 (Sibia, 2017). This steep increase of funding indicates a clear interest in the commercialization of space. It is important to note that much of the current revenues accrue to industries such as direct-to-home television and geolocation, navigation, and timing services. The next development phase for space is shifting towards new product development, such as additive manufacturing in low-Earth orbit (RocketLab and Firefly), manufacturing inflatable habitats for astronauts (Bigelow Aerospace), space mining of asteroids and minerals on Mars, space pharmaceutical for bacteria study (Space Pharma), and even space meteor shower entertainment on demand (ALE). New markets, new industries and new sources of innovation are on the horizon for the space sector.

SPACE VENTURES AND ASTROPRENEURS

Space ventures and astropreneurs are achieving engineering success and cost reduction, while striving to monetize space. There are marked innovations in cloud computing, IT, consumer electronics, smart manufacturing, AI, machine learning, satellite broadband, and reusable rocketry as a result of the growth of the space industry (Sibia, 2017; Morgen Stanley, 2019). The positive side effect of the efficiencies required by space engineering and rocketry have led to innovations, and profitable solutions for Earth applications (Chaikin, 2012). In addition, and as a result of the commercialization of space, rocket ships and satellites have seen marked innovations resulting in smaller, cheaper, lighter, easier to launch payloads providing access to space like never before (Mckendry, 2019). It is projected that between the years 2018 and 2032, space ventures will launch more than 3,980 satellites into space, adding to the 1,950 operational satellites already in space today (Mckendry, 2019). There is fear that an increase number of satellites orbiting earth will cause space to become overcrowding causing accidents, and debris to pollute space in the future (Mckendry, 2019). Below are examples of innovations and the commercialization of space ventures:

- SpaceX (Falcon 9) provides cheaper and faster access to space by reducing costs of launches to $57 million, and reusing rocket stages (Sibia, 2017; Chaikin, 2012).
- Planet Labs, with nearly $183 million in funding, is utilizing consumer electronic components, such as cell phones, to reduce the cost of manufacturing and shrink the size of satellites by almost ten times (Eascher, 2018; Sibia, 2017). They manufacture approximately 40 satellites per week in their 27,000 square foot cutting edge facility (Esther, 2018).
- OneWeb is building a manufacturing facility geared towards low cost, high volume nano-satellites for a constellation of almost 600 communication satellites (Sibia, 2017)
- Blue Origin, with nearly 1500 employees, plans to use their New Shepard rocket to send passengers into space for vacations. With over nine launches to date, their goal is to take non-astronauts into space for vacations (Berke, 2018).
- Astranis is a low-cost small satellite provider for telecommunications. They strive to give access to four billion people through the use of affordable Internet for people not online presently (Knapp, 2019).
- RocketLab based out of California has 3 launches under their belt (Coldewey, 2019). They raised over $288 million in funding reaching unicorn status of one billion dollars (RocketLab Website, 2019). Lockheed Martin is major investor. RocketLab provides

reduced cost launches of up to 500 pounds of payload into low Earth orbit for approximately $5 million dollars (RocketLab Website, 2019).
- Bigelow Aerospace with nearly $18 million contracted from NASA, builds portable, inflatable habitats for astronauts (13x12ft). The target for Bigelow is to go beyond the space station to the Moon, Mars, and asteroids. Their core focus is to provide greater work and living space, while keeping the density low on spacecrafts (Bigelow Aerospace Website, 2019)
- NanoRacks builds the upper stage of rockets which convert to long-term habitats (Boyle, 2018). The focus of the company is on commercial orbital stations, commercial orbital airlocks and outposts (Boyle, 2018).
- Firefly Space creates light weight rockets allowing for small satellite payloads. They have over $300 mill of preorders and over 42 launches scheduled (Firefly Website, 2019).
- Axiom Space manufactures body mounted solar panels for the international space station (ISS). They plan on weekly space tourist trips, 60 day astronaut missions, and on-orbit research (Boyle, 2019; Axiom Space Website, 2019).

THE RACE TO SPACE

In addition to the plethora of astropreneurs in space, there are nine countries and a handful of states within America that have emerged as space capable leaders. The global aerospace market generates $ 401.8 billion dollars annually, with the USA commanding $ 230.7 billion of that figure (ATKearney, 2019). As of today, nine countries have orbital launch capability and the capacity to build orbital vehicles. These aerospace capable countries are the United States, China, France Russia, Japan, India, Israel, Iran and North Korea (O'Callagan, 2013). More recently, Ukraine and South Korea inherited technology allowing them the capability for orbital flights. In addition, there are nine European nations that have orbital flight access through ESA and Arianespace (O'Callagan, 2013). It is anticipated that as space continues to commercialize, more nations will invest in space technology capabilities creating increased competition for everyone. In the future, America will likely face challenges for maintaining commercial, civilian and military dominance in space because many nations will challenge them. In fact, recently Russia and China developed weapons for space challenging American space leadership and its space dominance (McCarthy, 2019).

On a domestic note, California and Colorado hold the top positions for space contracts in America, and are home to the some of the largest space ventures in the world. California is the country's leading aerospace economy, commanding 9% of the total global Space and Aircraft industry contracts and 21% of the American aerospace market (ATKearney, 2019). California generated approximately $ 62 billion dollars' worth of revenue from the aerospace industry predominately focusing on launch services, satellite manufacturing, and on providing ground equipment, engineering and satellite services (ATKearney, 2019). A recent economic impact study found that California's aerospace industry employs more than 510,000 people, generates nearly $ 100 billion (combined directly and indirectly) from the aerospace sector, and produces $ 2.9 billion annually in personal income tax revenue associated with aerospace employment (ATKearney, 2019).

Similar to California, Colorado has emerged as a leader in space. Colorado is the nation's second-largest aerospace economy, providing aerospace companies with a highly educated workforce, and houses many high-tech businesses capable of supporting space efforts.

Colorado is home to nine of our country's top aerospace contractors with substantial operations in the state. There are approximately 25,000 employees working in the space sector and nearly 400 space driven enterprises are registered in Colorado (Colorado Space Coalition, 2019). Moreover, several key U.S. Department of Defense (DoD) facilities are located in Colorado, and NASA conducts research and development activities in the state. Lastly, companies such as Ball Aerospace, Digital Global, EchoStar, United Launch Alliance, Sierra Nevada Corporation Space Systems, along with several Colorado universities are among the world's best for aerospace engineering (Colorado Space Coalition, 2019).

With such considerable growth in the aerospace economy in the United States and around the world, entrepreneurs, lawyers, and educators are well-served to understand the legal environment within which these companies operate.

WHAT IS SPACE LAW?

Space law is comprised of international and national laws that govern space-related activities. These laws address matters ranging from the freedom of use and exploration of outer space by all nations to liability for damages caused by space objects to the nuances of government contracts (Smith, 2018). Space law addresses matters of global concern such as the protection of space and Earth environments, rescue and return of astronauts and space objects, sharing of information about potential hazards in outer space, the prevention of harmful interference from outer space and other nations, and international cooperation (Smith, 2018). It also address issues that arise in space activities that call for the application of laws developed over centuries that include quotidian legal matters such as tort claims of negligence, dispute resolution, contract claims, insurance claims, financing, intellectual property, and environmental laws.

International treaties and agreements form the foundation of space law—historically and within a global context. Domestic space laws, the U.S. being a leader in these efforts, include detailed laws and regulations applicable to the myriad of space activities in which many nations engage. Indeed, more than 20 nations have promulgated fairly detailed national space laws and regulations (Jakhu, 2010). The above mentioned legal doctrines such as contracts, torts, intellectual property, and dispute resolution comprise the most commonly applied area of law to space law activities (Smith, 2018). For example, government and commercial contracts are crucial to many of the aerospace companies described above. Key to all of these endeavors is dispute avoidance and resolution; international dispute resolution forums such as the International Chamber of Commerce Financing provide important services to space endeavors that are similar to the financing and insuring of other high-risk, high investment business ventures (ICC, 2019). These three basic pillars of space law provide the context for the paradigm shift in the space sector of commerce in this century.

International Space Law

The United Nations adopted five major space treaties in the 1960s and 1970s. The Committee on the Peaceful Uses of Outer Space (COPUOS) in the U.N. played the key role in establishing the five treaties discussed below. COPUOS was set up by the General Assembly of the U.N. in 1959 to govern the exploration and use of space for the benefit of all humanity: for peace, security and development (COPUOS, 2019). The Committee was tasked with reviewing international cooperation in peaceful uses of outer space, studying space-related activities that could be undertaken by the U.N., encouraging space research programs, and studying legal problems arising from the exploration of outer space (COPUOS, 2019). In 1961, the U.N. established two subcommittees under COPUOS that continue to meet annually due to the constantly evolving space agenda: the Technical Subcommittee and the Legal Subcommittee (COPUOS, 2019).

In the 1960s and 1970s, space-related issues focused on the two blocks of nations involved in the Cold War and the only two nations with space activities: the United States and the Soviet Union. These two war-faring nations had relative space-parity and the negotiations between the two were significantly different and perhaps less complex than negotiations today that must occur between many space powers including, but not limited to, the U.S., Russia, China, Europe (with internal divisions of its own), India and Japan. Developing countries have a significant voice in the U.N. system as well that grants each country one equal vote (UNOOSA, 2019). Nevertheless, the U.N. treaties, most significantly The Outer Space Treaty of 1967, establish broad, general principles for the use and exploration of outer space and, even after more than a half a century, continues to promote a legal regime that is favorable to commercial activities in space (Outer Space Treaty, 1967) (Smith, 2018).

The Outer Space Treaty

The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, is known as the Outer Space Treaty and, although based on a 1963 Declaration adopted by the U.N. General Assembly, entered into force in 1967 (UNOOSA, Outer Space Treaty, 2019). 105 parties are signatories to the Treaty, including all of the major space powers (COPUOS, treaties, 2019).

Many consider the Outer Space Treaty as the "Magna Carta" of space law because it establishes the basic rights, duties and responsibilities for the use and exploration of outer space (Smith, 2018). The Treaty acknowledges the legitimacy of activities by private enterprise in outer space yet makes clear that individual nations bear the responsibility and liability for the space activities of their non-governmental agencies (Outer Space Treaty, Articles 6 and 7, 1967). The Treaty is based on the centuries-old legal doctrine of rights and duties: space activities must be conducted with due regard to the interests of other parties; if harm is foreseen, all parties must consult before said activity takes place (Outer Space Treaty, Articles 6 and 7, 1967).

Article I of the Outer Space Treaty establishes that the exploration and use of outer space shall be conducted "for the benefit and in the interests of all countries…and shall be the province of all mankind"; space activities must be beneficial in a very general sense (Outer Space Treaty, 1967). The benefits of historical space activities have, indeed, accrued to all human kind. Not only major space-going nations that have invested in space exploration but also developing countries that have not been able to invest in space activities have reaped the benefits of the exploration and use of space: the availability of weather and other remote sensing information from satellites, access to international and domestic telecommunication satellites, universal use of global positioning information, and increased knowledge about our universe (Smith, 2018). NASA, for example, provided lunar sample materials to scientists in over 20 nations with a requirement that results of their analyses be published (NASA, 2019).

The principle of the freedom of exploration and the use of other space is of paramount importance in the Outer Space Treaty. Article I states "[o]uter space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies" and "[t]here shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and States shall facilitate and encourage international co-operation in such investigation" (Outer Space Treaty, 1967). The freedom-of-use of outer space is, thus, parallel to the freedoms of the high seas and maritime law which guarantees peaceful passage through navigable waters by ships of all nations (UNCLOS, 2019). In application, the Treaty is similar to the Antarctic Treaty System which includes a series of international agreements that call for cooperative management of Antarctica as a non-militarized environment and delays claims of sovereignty for an indefinite period (Antarctic Treaty System, 2019) (Krause, 2017). The freedom-of-use principle, therefore, has created a legal environment within which governmental and non-governmental space activities have thrived.

The freedom-of-use principle is borne on the establishment of Article II's non-appropriation language. Article II states that outer space is "not subject to national appropriation by claim of sovereignty, by means of use of occupation, or by any other means" (Outer Space Treaty, 1967). Appropriation and freedom-of-use are incompatible principles and Article II, therefore, furthers the principle that space activities be beneficial for all.

Article III encourages nations to conduct space activities "in the interest of maintaining international peace and security and promoting international co-operation and understanding" and, thus, extends the U.N. Charter and international law, in general, to space (Outer Space Treaty, 1967) (Smith, 2018). Article III etends international law to space and therefore any gaps that arise in the various space treaties may be filled with points of customary international law (Smith, 2018). Laws pertaining to self-defense and armed conflict, for example, are defined in other areas and can be applied to conflicts in space per Article III (Smith, 2018).

Article IV makes clear that nations may not place nuclear weapons or other weapons of mass destruction in earth orbit, on celestial bodies or in other areas of outer space, and that the Moon and other celestial bodies are to be used "exclusively for peaceful purposes" (Outer Space Treaty, 1967). Article V proclaims that astronauts are "envoys of mankind" and requires assistance to be rendered to astronauts in distress and be returned to the state of registry of their space vehicle (Outer Space Treaty, 1967). The Rescue and Return Agreement, one of the five treaties adopted by the U.N. in the late 1960s and early 1970s, expands on the rescue and return provisions in Articles IV, V and VIII of the Outer Space Treaty (Rescue and Return Agreement, 1968).

Article VI forms the basis of much national space law because it declares that every nation remains responsible for the space activities of its non-governmental entities and must provide "authorization and continuing supervision" (Outer Space Treaty, 1967). Hence, nations like the U.S. with multiple non-government entities conducting space activities have developed laws and regulations that require the licensing of such activities in order to fulfill their obligations under Article VI of the Outer Space Treaty (Smith, 2018).

Likewise, Article VII supports the principles articulated in Article VI by stating that "[e]ach State Party to the Treaty that launches or procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air or in outer space, including the moon and other celestial bodies" (Outer Space Treaty, 1967). The U.N. strengthened this objective with the 1972 Convention on International Liability for Damage Cause by Space Objects (the Liability Convention) the aim of which is full and equitable compensation for damage caused by space objects (Liability Convention, 1972). Accordingly, the U.S. has promulgated safety, regulatory, and insurance requirements in the Commercial Space

Launch Act (CSLA) along with a detailed regulatory regime that is discussed briefly below (CSLA, 1984, 1988, 2004) (Smith, 2018).

Articles IX, X, and XI require cooperation and mutual assistance among all parties. Parties must avoid harmful contamination of the Moon and other celestial bodies and adverse changes to Earth's environment, must conduct their activities with "due regard to the corresponding interests of all other States Parties to the Treaty," and must "undertake appropriate international consultations" before proceeding with any activity that could cause harmful interference with the activities of other parties (Outer Space Treaty, 1967). Parties are required to inform the U.N. and the international scientific community of "the nature, conduct, locations and results of [outer space] activities" (Outer Space Treaty, 1967). This Article parallels the requirements of the Antarctic Treaty discussed above (Antarctic Treaty System, 1959).

The Outer Space Treaty has provided a basis for subsequent treaties developed by the U.N. and has established a foundation upon which space exploration and activities have built for more than fifty years. Some of the key principles of the Treaty such as freedom-of-use and non-appropriation are now seen as customary international law applicable to all nations (Smith, 2018). Although discussions in Congress and among academicians have questioned whether the Treaty needs revisions and what gaps might need "filling" with new legislation or regulation, it has endured and has provided a launching pad for continuing U.N. studies as well as national regulatory regimes (Foust, 2017). From the aforementioned bounty of investments in space activities, the broad but certain legal regime that the Treaty began seems to provide a perfect balance of certainty and freedom.

The Rescue and Return Agreement, The Liability Convention, The Registration Convention, The Moon Agreement and other U.N. Resolutions and International Agreements

The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, otherwise known as the Rescue and Return Agreement, took effect in 1968 (Rescue and Return Agreement, 1968). The Treaty has 95 signatories and, as mentioned above, expands on Articles V and VIII of the Outer Space Treaty (COPUOS, treaties, 2019). The safety of astronauts is the driving purpose of the Treaty which broadens the term "astronauts" to "personnel of a spacecraft" (Rescue and Return Agreement, 1968). Articles II through IV focus on the rescue of the personnel of a spacecraft and demand that a party must "immediately take all possible steps" to rescue and assist the personnel of a spacecraft who have landed within that party's state's territory and then must return them as soon as possible to the launching state (Rescue and Return Agreement, 1968). If the spacecraft lands on the high seas or in any jurisdiction not of any state, any party in a position to assist must engage in search and rescue operations (Rescue and Return Agreement, 1968). The Agreement also addresses the return of space objects to the launching state; however, the duties are defined less strictly and the Agreement does not address whether or not the recovering state could make claims for recovery costs for returning such objects (Rescue and Return Agreement, 1968). Some have noted this as a "gap" that calls for national or international attention (Krause, 2017) (Oduntan, 2016).

The Convention on International Liability Caused by Space Objects (Liability Convention) became effective in 1972; it has 94 signatories and expands the Outer Space Treaty significantly to emphasize that launching states are liable to other states for damages caused by space objects (Liability Convention, 1972). A launching state, per the Convention, has absolute liability for damage caused on the Earth's surface or to aircraft in flight by its space object (Liability Convention, 1972). If damages occur in outer space, however, the launching state is only liable if "fault" can be assessed—something that would be difficult to prove (Liability Convention, 1972). The Convention applies the common assessment of liability that arises in tort claims when two or more parties are responsible for harm applies, joint and several liability (The Liability Convention, 1972). As a party to both the Outer Space Treaty and the Liability Convention, the U.S., as mentioned above, has promulgated safety, regulatory and insurance requirements in the Commercial Space Launch Act (CSLA, 1984, 1988, 2004). The Convention allows a party to submit claims for damages caused by a space object to a three-member Claims Commission in the U.N., but it does not prevent the assertion of private claims in courts or administrative tribunals; however, a party cannot present a claim under the Liability Convention if it is concomitantly seeking a private remedy (Liability Convention, 1971). Again, the application of the array of common legal remedies runs parallel to these global treaties.

The Convention on Registration of Objects Launched into Outer Space (Registration Convention) became effective in 1975, has 63 parties, and describes in more detail the obligations outlined in Article VIII of the Outer Space Treaty (Registration Convention, 1975). Per the Registration Convention, the U.N. maintains a register of space objects and requires nations to maintain national registries as well (Registration Convention, 1975). A launching state must inform the U.N. of the name of the launching nation and give specific information on the space object and launch. No requirement to update this information means that the location of a space object at any time is unknown.

The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (the Moon Agreement), signed in 1979, effective in 1984, has only 17 parties, the U.S. and other major space powers not being parties to this Agreement (Moon Agreement, 1979). The Outer Space Treaty provides the main elements of the Moon Agreement and reaffirms that the Moon and its natural resources are not subject to national appropriation and are the common heritage of mankind (Moon Agreement, 1979). The Moon Agreement addresses property rights emphasizing that property and installations placed on the Moon can be moved freely but the location does not create property rights or ownership of any kinds and property rights cannot be established over the surface or subsurface of the Moon (Moon Agreement, 1979). The legal issues relating to commercial exploitation of resources in space such as mining on the Moon or mining of asteroids involve the principles outlined in the Outer Space Treaty of non-appropriation and freedom-of-use as well as the articles of the Moon Agreement; the fact that the U.S. is not a party to the Moon Agreement does not in any way moot the applicable principles of the Outer Space Treaty.

In addition to these five treaties, the U.N. General Assembly has ratified five non-binding Resolutions on outer space exploration and use that have provided the guidance of customary international law to nations involved in space activities. The first of these pre-dated the Outer Space Treaty and provided the basis for the principles of that Treaty; the others expand on the principles articulated in the Outer Space Treaty. These include the Declaration of Legal Principles Governing the Activities of States in the Exploration of Space and Uses of Outer Space (UNGA, 1962); the Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting (UNGA, 1982); the Principles Relating to Remote Sensing of the Earth from Space (UNGA, 1992); the Principles Relevant to the Use of Nuclear Power Sources in Outer Space (UNGA, 1996); and the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefits and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (UNGA, 1996). Other international agreements address issues such as telecommunications, radio regulations, international space stations and an agreement establishing the European Space Agency (Space Policy Online, 2020) (Smith, 2018).

All of these international treaties, resolutions and agreements have been key in the expansion of the exploration of space as commercial enterprises take off.

U.S. Legal Regime Applicable to Commercial Space Activities

The Outer Space Treaty requires that specific nations bear "international responsibility for national activities in space" and that such nations must bear "authorization and continuing supervision" of the activities of non-governmental entities in outer space (Outer Space Treaty, 1967). The U.S. and other nations have responded by passing statutory and regulatory laws that address safety, financial responsibility, licensing, remote sensing of the earth from space, satellite communications, and even space mining. At this date, 22 countries have adopted space laws with others, such as the United Arab Emirates, developing their own set of such laws (National Space Law Collection, 2020). The U.S. has codified multiple laws to this end beginning with the 1958 National Aeronautics and Space Act (NASA Act, 1958). The NASA Act created the National Aeronautics and Space Administration (NASA) to conduct a U.S. civilian space program with military space activities assigned to the Department of Defense (DoD). Amended multiple times, the NASA Act emphasizes that activities in space should be devoted to peaceful purposes for the benefit of all humankind and also encourages the full commercial use of space to the maximum extent possible (NASA, 1958, 2005, 2008, 2010). The 2005 NASA Authorization Act established the International Space Station as a "national laboratory" to emphasize that its use is not limited to NASA-sponsored activities (NASA, 2005).

Some of the more salient U.S. space laws that have been adopted since the NASA Act include the following:

- The Commercial Space Launch Act of 1984, and its amendments of 1988 and 2004, (CSLA) govern commercial space launch activity. CLSA designated the Department of Transportation (DoT) as the federal agency responsible for facilitating and regulating commercial space launch activities; the DoT has assigned this responsibility to the Federal Aviation Administration's Office of Commercial Space Transportation (CSLA, 1984, 1988, 2004) (FAA, 2020). The CSLA also imposes and enforces insurance and financial responsibility requirements on licensees and investigates and penalizes violations of the CSLA (CSLA, 1984, 1988, 2004). The CSLA applies to the launch and reentry of space objects; no agency regulates on-orbit operations; this is one of the area where a regulatory gap is evident.
- The 1992 Land Remote Sensing Policy Act established a regime for facilitating and regulating commercialization of land remote sensing satellites while returning responsibility to the government. The Department of Commerce and its national Oceanic and Atmospheric Administration have oversight of commercial remote sensing satellites (Land Sensing Act, 1992) (NOAA, 2020).
- The 2015 Commercial Space Launch Competitiveness Act, referred to also by the name of its Title I, the Spurring Private Aerospace Competitiveness and Entrepreneurship (SPACE) Act, makes changes to U.S. commercial space policy including granting property rights to U.S. companies to mine resources from asteroids (SPACE Act, 2015). The Act allows U.S. citizens to "engage in commercial exploration for and commercial recovery of space resources…in accordance with the international obligations of the [U.S.] and subject to authorization and continuing supervision by the Federal Government" but that the U.S., through the Act does not "assert sovereignty or…exclusive rights or jurisdiction or ownership of any celestial body" (SPACE Act, 2015).

The SPACE Act fosters debate about whether or not the Act violates the non-appropriation clause of the Outer Space Treaty while others contend that it is aligns with the Freedom of Use

Principle of the Outer Space Treaty (Gradoni, 2018). In fact, Luxembourg enacted similar legislation in 2017 and there has been little objection in the U.N. (Gradoni, 2018).

The U.S. statutory provisions and administrative regulations have helped foster the development of commercial space activities in the U.S. As the industry evolves, a need to streamline some of these regulations and expedite the license application procedures seems to become more evident and awaits Congressional action. A move in this direction occurred in 2010 with a re-codification of U.S. space laws that enacted a restatement of existing law relating to national and commercial space programs as a new title in the U.S. Code; Title 51, National and Commercial Space Programs, consolidates multiple statutes dealing with space law such that these laws can be found in one place (Title 51, 2010). Nevertheless, practicing space law attorneys opine that the majority of applications of the legal environment of space law involves issues mentioned above: tax, tort, finance, dispute resolution, insurance, contracts, environmental laws, export controls, intellectual property and government contracts (M. Smith, personal communication, August 2019).

CONCLUSION

The "Magna Carta" of space law, the Outer Space Treaty, was enacted 53 years ago by the United Nations. It has provided broad guidance to nations and private entities about space exploration and space activities with an emphasis on peace and collaboration. In addition, the U.N. has adopted resolutions and recommendations on how national legislation can comport with the Outer Space Treaty and how national legislation can be enacted so as to be relevant to the peaceful exploration and use of space. The U.S. Congress has opted to regulate the space industry loosely and investors and entrepreneurs have replied enthusiastically to the regulatory parameters that do not seem to impose regulatory burdens. The flexibility of the laws have allowed the industry to grow.

Some "gaps" in the laws and regulations call for discussion and legislative action: there is no U.S. agency with jurisdiction of on-orbit activity; the FAA licenses the launch and return of space vehicles but has no authority over on-orbit activity; there are no judicial decisions on a question of space law in an international court. Concern arises around privacy laws with the abundance of satellites as well as around property laws and the conflict between laws allowing mining of celestial bodies and those prohibiting it. Nevertheless, space law emphasizes sustainable use of outer space resources and peaceful exploration for the benefit of all humankind. The Space Station continues to exemplify successful public/private partnerships. The future of space exploration and commercial ventures as well as the financial markets do not seem to be at peril for any lack of certainty from the national and international legal regime. Indeed, in this realm, it appears as not even the sky is the limit.

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THE EFFECTS OF FOUNDER PRESENCE ON TURNOVER POST ACQUISITION

Kevin Rhoads, Utah Valley University

ABSTRACT

A growing trend is the acquisition of startups as a source of competitive advantage. In this context, the presence of the founder creates a unique tension that must be considered. Employing a human capital, we examine the impact the founders of acquired startups have on post-acquisition success, specifically on employee turnover. We analyze feedback from 369 employees of acquired startups. The findings indicate that levels of entrepreneurial culture and employee commitment post-acquisition are inversely related to employee turnover within the acquired firm. These relationships are found to be fully mediated by whether or not the founder is still in place.

INTRODUCTION

Historically, mergers and acquisitions (hereafter referred to as acquisitions) have been important activities for firms at all stages of business as a strategic tool to grow, improve performance, or become a market leader and has reached unprecedented levels in recent years (Barkema & Schijven, 2008). The value of acquisitions has reached a new high topping an annual $3.46 trillion USD (Dealogic, 2006) despite the fact that acquisition success is achieved by acquirers less than 30% of the time, the use of acquisitions continues to increase (King, Dalton, Daily, & Covin, 2004; Selden & Colvin 2003). An increasing number of acquisitions are targeting relatively young firms or *startups* as a source of potential competitive advantage and growth creating unique contexts for understanding the outcomes of acquisition activity (Zendrian, 2009). These startups are a rich source of innovation and new technologies, new or high growth markets, and even as a source of barriers to potential future competitors (Puranam & Srikanth, 2007). However, the acquisition of startups presents unique challenges for acquiring firms, specifically when deciding whether to retain the founding team post-acquisition and understanding the impact of that decision on the ability of the acquiring organization to retain key employees that produce the acquisition's desired value.

In considering the role of the unique relationships between founders and their employees, established research streams on acquisitions have established paradigms through which the management team of the acquired firm is analyzed. For instance, through the market for corporate control paradigm, the founding management team is seen as inefficient and should be replaced to ensure increased operational effectiveness yielding financial gains (Agrawal & Walkling, 1994; Boeker & Wiltbank, 2005). Other researchers provide an opposing view that top management team loss results in the loss of knowledge and experience from key leaders (Canella &Hambrick, 1993; Krug & Hegarty, 2001). Additional research has also studied the turnover rates of top management teams and found that acquired firms experience high levels of turnover (Walsh, 1989). The presence of the founder within the top management team of an acquisition target has a unique impact within his or her organization. The founder is chiefly responsible for the origins of the firm and the blueprint or path the firm has since followed (Baron, Hannan & Burton, 2001;

He, 2008). The founder is the basis of the technologies of the startup, the selection of employees and the resulting levels of commitment by the employees, and is primarily responsible for the culture developed in the firm (Baron et al., 2001; He, 2008).The founder is also most often associated with the growth and potential success or failure of the firm as the decision maker who directs employees in the development and use of the capabilities of the firm (Baum & Locke, 2004). Each of these elements contribute to the ability of the acquiring firm to retain employees and reduce turnover which is especially important so as not to lose contributing factors that may help lead to future success (Haleblian, Devers, McNamara, Carpenter, & Davison , 2009). These contrasting world views, founding elements, and the recent explosion of acquisition activity involving startup firms, makes it is essential to develop a clearer understanding of the impact of the founder of the startup on the acquired firm during an acquisition, especially the impact of the founder on the ability to retain the employees post-acquisition.

The question then is, should the founder be kept after being acquired or should the founder be replaced by a professional management team to ensure future success? Considering this question through a human capital lens, two potential perspectives exist. One is that the founder may be a roadblock and act as a resistance lever to the employees accepting the acquisition increasing the potential for high levels of employee turnover creating the need to replace the founder. The alternative explanation is that the founder is essential in transferring the tacit knowledge of the acquired firm through the ability to ease the integration process for the acquired firm's employees which can positively affect the integration process. The role of the founder in the acquisitions of startup firms is an important factor to understand, especially as startup acquisitions continue to increase. However, it may not be suitable to treat founders as traditional TMT's during the acquisition process due to the unique nature of the founder-employee relationships that exist in startup firms.

This paper examines the effects of the founder of an acquired startup firm using a human capital based lens to better understand the relationship between the founder's presence post-acquisition and employee turnover rates. Specifically we examine the impact of the founder's presence during an acquisition on the relationship that exists between the levels of entrepreneurial culture of the acquired firm and turnover rates post-acquisition as well as on the relationship between the acquired startup employees' level of commitment and post-acquisition turnover rates. In so doing, several contributions are brought forward adding to our current understanding of acquisitions.

First of all, this research provides a better understanding of what factors may lead to post-acquisition success by examining the impacts of retaining or removing founders during an acquisition on post-acquisition integration success. Although much of the existing research discusses elements of fit, operational similarities, resource combinations, diversification, or strategic growth. This study adds an important additional element by clarifying the role and impact of entrepreneurial founders on the post-acquisition integration of culture and employees and the effects of each on post-acquisition turnover rates. This is important as human capital has been identified as one of the key resources of any firm and the effect of employee turnover is often the cause of future performance challenges (Jo & Joo, 2011).

The second contribution is the extension of boundary conditions in acquisition research. Whereas much of management and finance literature on acquisition deals with structure, fit, financial impact, or strategic direction, this study examines the human capital perspective of entrepreneurial acquisitions and presents a discussion of the unique nature of acquiring a startup venture with the founder still in place. In doing so, we address several core causes of acquisition failure identified by Schmidt (2003), as well as the negative effects of turnover on a firm's ability to maintain or even develop competitive advantage (Baron et al., 2001; Coff & Kryscynski, 2011).

Finally, through the use of a human capital lens in RBV, this study answers the call of recent acquisition studies to better understand the human capital impacts of acquisition (Chaterjee et a., 1992; Graebner, 2004). The results show that founders have an important impact on the post-acquisition process of integration and on the potential for future firm success. Although much of the existing research on acquisitions and managers discuss the challenges of acquired firms' top management teams, this study looks at the positive benefits, specifically of founders of acquired firms. A central contention of this study is that through the perspective of viewing founders as important and valuable resources, the potential for post-acquisition success increases.

THEORY DEVELOPMENT

Acquisitions Research

Acquisitions as a type of growth and diversification strategy continue to be a common activity undertaken in the marketplace. Even though roughly 70% of acquisitions fail to yield financial premiums to the acquiring firm, acquisition activity continues to increase (Selden & Colvin, 2003). As the total value of acquisition activity has continued to increase over the years, the focus of acquisition activity is shifting (Zendrian, 2009). Whereas a large portion of acquisitions have often involved the purchase and integration of existing and established firms, recent trends are moving toward the increased opportunity to acquire younger startup targets (Zendrian, 2009). This shift towards startup firms as acquisition targets is projected to continue by market analysts for several reasons including the ability to quickly acquire new technologies, organizational units with the ability to develop future innovation, tacit knowledge in targets essential in creating competitive advantage, and other important resources that may take too long or cost too much to develop in-house (Puranam & Srikanth, 2007).

Traditional research on acquisitions has focused on the antecedents to acquisition activity acquisition behavior of firms, acquisition outcomes, and factors moderating acquisition the acquisition behavior/outcome relationship (Haleblian et al., 2009). In each of these streams of acquisitions research, an important relationship of interest is the link between top management team (TMT) of the acquired firm and turnover (Cannella & Hambrick, 1993). Turnover has been examined and argued to be both important to the success of an acquisition as well as a pitfall for acquisition success. Various lenses have been used to examine turnover, especially through the role and impact of the acquired TMT which has contributed to the creation of opposing views of integrating acquired TMTs. One view presented through the market for corporate control perspective is the need to replace TMT members in order to realize the potential of the underperforming acquired firm (Agrawal & Walkling, 1994). Contrasting this view is the work of Cannella and Hambrick (1993) and others who, through an agency and strategic management lens, argued that TMT and employee turnover leads to important losses of knowledge and experience at the senior levels of a firm which can create barriers to achieving post-acquisition success. An additional view involves the notion of TMT members and firm employees as key resources that can augment the acquiring firm's resource stocks (Dierickx & Cool, 1989; Rumelt, 1974). Each perspective presents additional understanding of the impact TMT members can have on the acquisition process; however these perspectives are limited in their ability to explain the impact of the founder in comparison to an established TMT; specifically, the ability to account for the unique impact of the founder on the human capital via culture and commitment of an acquired startup firm.

Acquisition Integration and Human Capital

The success of an acquisition is integrally linked to the ability to achieve successful post-acquisition integration (Larsson and Finkelstein, 1999). This is especially true when acquiring a younger startup. These firms are often blueprints resulting from the influence of the founder (Baron et al., 2001). This blueprinting process creates an entrepreneurial culture and a deep sense of commitment by the employees that is essential to the overall success of the venture (Baron et al., 2001). This interaction creates a unique level of importance for the human capital of the startup to be considered by the acquiring firm. One of the key elements in acquisition integration efforts is the ability to incorporate this human element or the firm's human capital and thus reduce turnover (Schmidt, 2003). Human capital refers to the knowledge, skills, and abilities (KSA's) found within the human resources of a firm (Coff, 2002). Human capital is not just the core instructional knowledge associated with experience and learning, but it also incorporates the tacit knowledge embedded in the organization which is difficult to pass on through teaching others which can ultimately contribute to a firm's quest to achieve a competitive advantage (Polanyi, 1966).

Both the explicit and tacit knowledge components of human capital are important for a firm to consider during acquisition integration and have been shown to be contributors to overall firm performance (Andrews, 1965; Hambrick & Mason, 1984; Larsson & Finkelstein, 1999). Linked to the human capital/performance relationship is the concept of social complexity (Coff & Kryscynski, 2011). Social complexity is the set of relationships that develops through a culture in an organization. It can often lead to intangible yet extremely valuable, costly to imitate resources thus creating isolating mechanisms which can be a determinant of sustainable competitive advantage for firms (Barney, 1991; Coff & Kryscynski, 2011; Lippman & Rumelt, 1982). It is this development of human capital as a contributor to competitive advantage through the isolating mechanism of social complexity that makes this issue relevant to better understanding the potential for success when acquiring startup firms. Two important characteristics that evolve through social complexity that lead to firm advantages is the culture of the firm as embedded in the employees and the commitment of the employees to the organization (Jo & Joo, 2011).

Entrepreneurial Culture

Culture is defined as a set of beliefs shared within an organization that help to determine the actions and behaviors of members of that organization (Sathe, 1985). Culture has often been linked to strategy as an important determinant of firm success (Ackerman, 1984). Where this is true for large established firms, it is especially true for entrepreneurial startups due to the process of founder imprinting which establishes the entrepreneurial culture of the startup (Baron et al., 2001; He, 2008; Minguzzi & Passaro, 2001). Entrepreneurial culture has been defined in many different ways and in many different settings. It involves elements such as risk tolerance, innovation, creativity, and agility at the employee level. Entrepreneurial culture is often linked to both new firm success as well as the ability of established firms to innovate or to renew themselves in order to sustain performance success (Dimitratos & Plakaoyiannaki, 2003; Ireland, Hitt, & Sirmon, 2003; Minguzzi & Passaro, 2001). It has been established that the elements of entrepreneurial culture listed above lead to greater firm performance and often are some of the reasons entrepreneurial startups are important acquisition targets for more established firms

(Arora, Fosfuri, & Gambardella, 2001; Lumpkin & Dess, 1996). This prior research links the presence of an entrepreneurial culture to long term company success as well as to the ability of existing firms to refresh their presence in the market.

With the acquisition of young startup firms, it is important to understand the role that the entrepreneurial culture of the acquired firm plays in relation to the overall culture of the acquiring organization. The integration of an acquired culture into the new firm is an important balance of autonomy and coordination (Graebner, 2004). Through this integration, the right balance allows for the continuation of the entrepreneurial culture without hindering the acquisition process. It is accepted that a firm may have a dominant culture as well as many subcultures (Sathe, 1985) and that a firm's culture is critical in determining its potential for success (Peters & Waterman, 1982). Therefore, it is logical to assume that one of the key elements of acquisition success is the appropriate level of cultural integration (the ability to maintain the dominant culture of the acquiring firm while preserving the entrepreneurial culture of the acquired firm) that takes place. In discussions on acquisition success, Shrivastava (1986) examined the importance of effective post-merger integration of two companies involved in an acquisition. He presented three levels of integration: (a) procedural, (b) physical, and (c) sociocultural. The first two levels of integration have been discussed extensively in the literature from a strategic and financial perspective (Shrivastava, 1986). However, sociocultural integration or the focus on human capital has traditionally not been thoroughly examined and yet, as mentioned above, has been identified as a potential source of advantage in the market through the social complexity elements of human capital resources (Coff & Kryscynski, 2011; Haleblian et al., 2009; Nahvandi & Malekzadeh, 1988).

The entrepreneurial culture of the acquired firm is an important source of tacit knowledge and a critical component of the ability of the acquiring firm to capitalize on the capabilities accessed through the acquisition (Puranam & Srikanth, 2007). It is shown in firms that the strength of the culture has a direct effect on organizational performance measures (Jo & Joo, 2011).

In a recent review of the existing research on acquisitions, one of the important performance measures discussed was the level of turnover in the acquired firm (Haleblian et al., 2009). In fact, one of the common outcomes of an acquisition is increased turnover rates within the acquired firm (Walsh, 1989). In some cases turnover is an expected and welcome outcome, especially through the agency or market for corporate control perspectives used to conduct acquisition research (Haveman, 1995; Agrawal & Walkling, 1994). However, it is also recognized that turnover results in the loss of important experience and knowledge which can often time weaken the ability or lengthen the time needed to effectively access the acquired capabilities or technologies (Cannella & Hambrick, 1993). Within startup firms, the loss of employees directly impacts the culture of the firm and the intangible resources derived through social complexity. It is also the contention of this study that the level of entrepreneurial culture will directly impact the level of turnover of employees of an acquired startup. A strong entrepreneurial culture is one important element in reducing turnover, leading to the following hypothesis:

> *H1: The level of the acquired firm's entrepreneurial culture post-acquisition will be negatively related to the acquired firm's turnover rate.*

Employee Commitment

Larsson and Finkelstein (1999) discuss an important element in considering acquisition success, employee resistance to the changes associated with the acquisition. The ability to minimize employee resistance to the acquisition process as well as the negative impact employee resistance can have on future success is an important element contributing to successful post-acquisition integration and a link to being able to access the capabilities accumulated through the acquisition leading the greater potential of achieving post-acquisition success (Larsson & Finkelstein, 1999; Puranam & Srikanth, 2007). It is thus logical to assume that an important way to overcome the challenges presented through employee resistance is to strengthen the commitment level of employees to the newly formed organization post-acquisition.

Commitment takes many different forms and is measured at many different levels. Commitment of employees has been examined in relation to job satisfaction, turnover, and job performance (Cooper-Hakim & Viswesvaran, 2005; Meyer & Allen, 1984), as well as in view of the overall organization (Rogg et al., 2001). The commitment of employees to their organization is defined as "the strength of an individual's identification with and involvement in a particular organization" (Porter, Steers, Mowday, & Boulian, 1974, p. 604). “A person who is high in organizational commitment wants to (a) stay with his or her organization, (b) work for the good of the organization, and (c) adhere to the prominent values of the organization” (Cooper-Hakim & Viswesvaran, 2005: p. 243). Commitment is an important determinant of job performance as well as the potential to achieve organizational outcomes through reduced turnover (Cooper-Hakim & Viswesvaran, 2005; Meyer & Allen, 1984; Rogg et al., 2001).

As the commitment level of employees to the organization increases, the ability to accept changes and engage in behaviors that are for the good of the company increases (Meyer & Allen, 1984; Meyer, Allen, & Gellatly, 1990). An acquisition is a process that entails great change and uncertainty, especially for the employees of the acquired firm (Fried, Tiegs, Naughton, & Ashforth, 1996). These challenges can create increased resistance to the acquisition if not handled appropriately (Larsson & Finkelstein, 1999). Therefore increased levels of commitment to the organization throughout an acquisition can facilitate dealing with the uncertainty and the changes associated with the acquisition and thus minimize employee resistance and decrease potentially high turnover rates commonly associated with the acquisition process. Therefore, we contend the following:

H2: *The level of employee commitment in the acquired firm post-acquisition will be negatively related to the turnover rate within the acquired firm.*

The Founder

Through the process of acquiring a startup firm, as noted above, the level of entrepreneurial culture and employee commitment are important factors relating to the acquiring firm’s need to deal with turnover causing the loss of important human capital. Essential in this discussion is the role the founder has in these relationships. The founder of a startup firm plays a role which, although similar in some respects, is quite different than that of a professional management team (He, 2008). The founder is often central to the organization and is by definition integrally linked to the origins and history of the firm (Shane, Locke, & Collins, 2003). The founder is typically associated with the growth and potential success or failure of the firm and is often integrally linked to both the capabilities of the firm as well as to the employees within the firm (Baum & Locke, 2004). Through these characteristics, the founder has been intrinsically linked to the employee motivation and culture of his/her firm more so than professional managers (He, 2008). The founder has the unique opportunity to establish a blueprint for the startup and develop the culture and employee connection to the organization (Baron et al., 2001). Thus, it is the contention of this paper that the acquisition of a young startup firm with the founder in place presents important integration considerations that are outside the traditional assumptions of TMT/Acquisition research streams which treats TMT's from established firms and startup firms as primarily the same. In the process of acquiring a startup firm with the founder in place, the founder is an essential component in the challenge to reduce turnover. It is the central contention of this paper that the founder is pivotal in understanding the relationship between culture and commitment and post-acquisition turnover. Therefore the following hypotheses are proposed:

> *H3:* *The presence of the founder post-acquisition will mediate the relationship between the level of entrepreneurial culture and turnover within the acquired firm.*

> *H4:* *The presence of the founder post-acquisition will mediate the relationship between the level of employee commitment and turnover within the acquired firm.*

METHODS

Sample and datasets

In order to test the hypotheses regarding the impact of the retention or replacement of founders on the acquisition success of startups we collected data from an established firm in the energy industry based in the Southwest US that had engaged in multiple acquisitions of young entrepreneurial startup firms over a 5 year period. Industry analysts predict that the future of acquisitions in the energy industry will undergo a series of startup acquisitions rather than a limited number of larger acquisitions or mergers (Zendrian, 2009). We were able to collect data for 19 acquisitions of startups, 9 of the acquired firms had their founders in place and 10 of the acquired firms had their founders replaced by a team of professional managers by the acquiring firm. The acquired firms ranged in size from 2 employees to 88 employees providing greater insight into trends and consistent results versus the challenges of garnering insights based on single firm acquisition events, as well as control for unique differences between firms that can influence cultural issues and employee commitment levels (Barkema & Shijven, 2008). Within this sample, the 19 acquisitions were evaluated generating 369 data points comprised of surveys and interviews.

We received access to data that was gathered through organizational surveys, as well as a series of interviews with management team members within the organization. The surveys were commissioned by the acquiring firm to specifically measure the effects of the post-acquisition integration process and administered to the acquired company employees at a time frame ranging from 2 years to 4 years following the acquisition. Accordingly, our analysis sample includes 186 responses from the 9 acquisitions where the founder had been retained and 183 responses from the 10 acquisitions where the founder had been replaced by a team of professional managers.

Measures

Dependent variable measure. The dependent variable used for this study was turnover. As turnover is noted to be an important organizational performance measure when dealing with human capital based research, this became a useful and accessible measure (Coff & Kryscynski, 2011; Haleblian et al., 2009). The turnover rate was gathered through interviews with the acquiring firm's management and was reported by acquired firm. The turnover statistic represents the number of employees that left the organization post-acquisition. To better reflect the effect of turnover on the acquired firm, the number was then transformed to represent the percent of turnover to help address any concerns regarding differences in firm size and turnover rates.

Independent variable measures. We used two independent variables to test our hypotheses, the level of entrepreneurial culture post-acquisition and the level of employee commitment post-acquisition. The 7 items testing entrepreneurial culture examined levels of innovation, risk tolerance, and agility/decision making speed of the organization from the employees' perspective and included statements like "I am encouraged to try new approaches" (Glick, 1985). The 5 items testing employee commitment were items focusing on the overall level of organizational commitment from employees and include such statements like "I would recommend this place as a good place to work." (Rogg et al., 2001). Each of the variables above is a composite scale and each item measured on a 5 point scale with end points of 1 = "Strongly Disagree" to 5 "Strongly Agree".

A factor analysis of the items used on the overall survey was performed to determine the fit for each item with the two variables mentioned above as well as to assess the correlation between the variables. The loadings on each item were well above the accepted .4 level and ranged from.588 to .834 with an alpha of .836 for entrepreneurial culture. Similar results were obtained for employee commitment with loadings from.852 to .874 and an alpha of .914 (cf. Hair, Anderson, Tatham, & Black, 1998). The correlation between each scale was -0.036 indicating divergent validity between the two measures used.

Mediating variable measure. The mediating variable was a binary variable based on having founders or professional managers left in place. This was set up as a dummy variable based on whether or not an acquired business unit had the founder still in place or if the founders had been replaced with a team of professional managers inserted by the acquiring company. Acquisitions where a team of professional managers was inserted were coded 0 and acquisitions with the founders left in place were coded 1. According to the acquiring firm, it had deemed performance acceptable for each unit so the decision to keep founders in place was not based on acquired firm performance, but based on the decisions of the top management team of the acquiring firm.

Control variable measures. Since this data set was a naturally occurring sample, many validity concerns are minimized. Additional control variables were set up to eliminate other potentially spurious internal effects where possible. Such variables included the age of each employee to determine any differences in perceptions of acquisition integration by generation age groups, gender, the time since acquisition for each acquired firm, labeled as time, to control for time differences between the time since an acquisition took place, and the geographic location of the acquisition to consider the impact of various geographic factors in acquisition perceptions. We also included a control variable for the business unit of each employee to separate the effects of being a part of particular business unit from the variables of interest.

Since the control variables were categorical variables, the process of setting up as many as 30 dummy variables for each control variable was deemed not useful. Instead, we followed Toothaker (1992) and Sharfman and Fernando (2008) and ran an analysis of variance (ANOVA) using the dependent variable as the DV and each control variable separately as the IV. We then ran a post hoc analysis on those significant differences using both Bonferroni and Dunnett's T3 tests to determine where exactly the differences were in the data. Using these results, we checked to ensure the differences aligned with the founder and non-founder classification and set up dummy variables to use in future testing. In doing this, we also determined which control variables seemed to impact the model of interest for each DV – IV relationship. The control variables listed above were all included in the models allowing for a stronger comparison between models and greater confidence in the reliability of the findings.

Results

Table 1 below reports the descriptive statistics as well as the correlations for each of the variables discussed in this study. To ensure that there was not a colinearity issue between the variables, We ran a test for colinearity for each model. The VIF statistics for each of the different variables at each point in time in the study were at or marginally above 1.0 indicating a lack of colinearity issues and that no single variable exerted undue influence on the analytic results (Neter, Wasserman, & Kutner, 1985).

	Mean	StDev	Percent Turnover	Age	Gender	Tenure	Location	Firm Type	Ent Com	Ent Cult	Founder
Percent Turnover	0.1029377	0.0736941	1.0000								
Age	0.2384824	0.4267342	0.0075	1.0000							
Gender	0.5880759	0.4928498	0.0835	-0.0963 **	1.0000						
Tenure	2.04607	2.800532	0.0270	-0.2766 ***	0.0588	1.0000					
Location	1.227642	1.331963	0.1236 *	0.0018	0.0699 *	-0.0085	1.0000				
Firm Type	5983.333	3897.09	-0.1194 *	0.0461	-0.1608 ***	-0.1150 **	0.1368 ***	1.0000			
Ent Commitment	0.3322008	0.5163803	-0.2179 ***	0.1358 ***	-0.0153	0.0303	0.1181 **	0.1366 ***	1.0000		
Ent Culture	0.0492565	0.9756504	-0.1575 **	0.0192	0.0803 *	-0.0139	0.0899 †	0.1301 ***	-0.0046	1.0000	
Founder	0.495935	0.5006623	-0.8089 ***	0.0045	-0.0729	-0.0222	-0.0883 †	-0.1323 †	0.3736 ***	0.1109 *	1.0000

Once we completed the series of ANOVA tests discussed above for each of the variables in the study, we used various regression techniques based on the characteristics of the data to test the hypotheses presented. Each technique was chosen specifically to be able to test the relationship of the theoretical variables compared to the control variables in order to assist in ruling out possible alternative explanations (Sharfman & Fernando, 2008). We followed the steps outlined by Baron and Kenny (1986) to test a mediation model as proposed in this study. Hypothesis 1 discussed the proposed positive relationship between entrepreneurial culture and turnover. To examine this question, we used single limit Tobit regression to account for potential clustering of turnover data for firms that experienced no turnover, setting the lower limit to 0. Table 2 (Mediated Model) below reports the findings from this analysis. As can be seen, the findings were significant establishing support hypothesis 1.

DV: Percent Turnover	Mode l 1: Controls		Model 2: IV-DV		Model 3: Mediated Model	
Controls:						
Intercept	0.095 5332	* **	0.119 8897	* **	1.89E -01	* **
Age	0.002 4135		0.010 1114	 *	- 0.0032746	
Gender	0.009 4272		0.008 7567	* *	- 0.0034789	
Tenure	0.001 2259		0.001 6066		0.000 225	
Location	0.007 2931	 *	0.006 6896		0.003 2295	 *
Business Unit	- 1.99E-06	 †	- 3.75E-06	* **	- 4.41E-06	* **
Independe nt Variables:						

Entrepreneurial Culture			-0.0086739	***	-0.0015512	
Employee Commitment			-4.49E-02	*	0.0007661	
Mediator:						
Founder					-0.1251979	***
Model Statistics:						
Log Pseudo likelihood	388.12369		407.22885		602.7583	
Pseudo R^2	0.017		0.067		0.579	
F-statistic	2.320	*	7.390	***	154.850	***

Similar analytical techniques were used to test hypotheses 2 which examined the relationship between employee commitment and turnover rates within the acquired firm. Table 2 displays the results of this analysis. The findings show a highly significant relationship between the level of employee commitment of the acquired firm and the ability to reduce turnover rates within the acquired firm.

Hypotheses 3a and 3b presented the mediating influence of the founder on the relationships discussed above. To test for mediation, we examined the relationships between commitment and culture and the founder/non-founder variable as well as the direct effect of the founder on turnover (Baron & Kenny, 1986). The relationship between entrepreneurial culture and commitment with the founder is measured using probit to account for the binary nature of the dependent variable and are both found to be positively correlated to the presence of the founder and significant. The full model with the mediator, IV's, and control variable was then tested and found to be significant. The relationship between the founder and turnover is significant as hypothesized providing support for hypothesis 3. The findings show that the effects of entrepreneurial culture and employee commitment on turnover become non-significant when the variable capturing founder presence is introduced to the model. The overall results indicated that the presence of the founder fully mediates the relationship between culture, commitment and turnover.

DISCUSSION

The market for corporate control is a well accepted theoretical perspective used to conduct acquisitions research. It positions an acquisition target's management team as inefficient and needing to be replaced in order to maximize the target's true performance potential, creating a market for the management of organizations (Jensen & Ruback, 1983). Additional research has employed organizational fit perspectives (Datta, 1991), ownership and agency perspectives (Goranova, Dharwadkar, & Brandes, 2010), and many other theoretical paradigms which discuss the organizational level outcomes of acquisitions and in many cases, the top management and employee turnover issues associated with acquisitions (Siegel & Simons, 2010; Walsh, 1989).

This study's principle focus is on the positive impact a startup acquisition target's founder can have on post-acquisition integration success, specifically on the importance of the ability to reduce turnover within acquired startup firms.

These results suggest that after the acquisition of a startup firm has been implemented for a period of time, increased levels of entrepreneurial culture and employee commitment helps the acquiring firm reduce turnover rates within the acquired firm. This is especially true when the founder is present post-acquisition. As we continue to develop the human capital perspective of acquisitions research, this finding contributes to a deeper understanding of the impact of culture, commitment on performance and the ability to potentially achieve and explain positive acquisition performance. One specific contribution is the continued extension of the human capital lens within RBV to acquisitions research, and specifically in relation to the acquisition of entrepreneurial startup firms. This offers an alternative framework in which to examine mergers and acquisitions and analyze the results of acquisitions.

In turn, the study contributes to the acquisition research by creating potential boundary conditions making a case for examining startup acquisitions differently from more traditional acquisition research that prescribes to the need to change management teams. This study also proposes that in the acquisition of entrepreneurial startup firms that the replacement of the founders with professional management teams should be considered cautiously. In fact these results suggest that founders are potentially important keys to post acquisition integration success through the ability to help reduce turnover within the acquired firm and may need to be considered as important resources versus liabilities to the acquiring firm. In this light, an additional contribution is a clearer understanding of how the retention of a founder post-acquisition can impact future success.

Additionally, the use of RBV as a lens through which acquisitions, and specifically managers in acquisitions, can be evaluated and studied is a growing focus in management research. This study helps extend the RBV to entrepreneurial acquisition research creating an additional framework for evaluating and studying TMT's during and after an acquisition has been made. The findings help to define post-acquisition success for the acquisitions of startup entrepreneurial firms in a way other than traditional accounting measures as well as shed insight into potential leading indicators of future financial success post acquisition.

Future research and limitations

The findings in this study not only offer insights into existing acquisitions research, but open up additional areas of opportunity for important new research. One such research implication is in the further examination of the positive impact of founding managers post acquisition. This study focused specifically on the differences between entrepreneurial founders kept in place as the head of their organization versus their replacement by a team of professional managers post acquisition and their resulting impact on the human capital of the acquired firm. Future research could further examine the specific roles of founders post acquisition and the impact different roles have on the acquisition's success. For example, does moving the founder to a key leadership position within the corporate headquarters of the acquiring firm impact employees in a positive or negative manner or lead to greater post acquisition integration success and future performance success?

An additional area of future research stems from the findings of this study relating directly to the presence of entrepreneurial culture at the time of acquisition versus at a later point in time post acquisition. The findings suggest that there is exists a positive relationship between the level of entrepreneurial culture post-acquisition and turnover. Future research could examine the factors that influence the levels of entrepreneurial culture at the time of acquisition and how time permits the culture to re-develop under the influence of founders after a period of acquisition implementation.

Along these lines, employee commitment levels are found to be significantly related to turnover. At the same time, the consideration of acquisition location is related to employee commitment. In these findings, we find that acquisitions made by a US firm of a US entrepreneurial target where the founder is kept in place results in stronger levels of employee commitment immediately following the acquisition than those outside the US and without the founder in place. This adds additional insight into past research discussing the effects of cross border acquisitions and extends the findings to entrepreneurial firms (Krug & Hegarty, 1997). Interestingly, however, the findings also suggest that the effects of geographic location on employee commitment disappear after a period time. Although significant, it may be useful to understand to factors contributing to this relationship as well as potential substitutes over time. In this vein, additional research along these lines will help clarify understanding and the impact of these findings over time and what factors evolve to replace the role of founder in sustaining high levels of employee commitment well after the acquisition has taken place.

The findings of this study add to existing acquisitions research and provide an interesting course of direction for future research and management practice; however the results should be considered carefully and in the appropriate context. This study, as with all studies, has potential concerns that should be addressed when interpreting the results. The primary concern may be the overall generalizability of the findings. Although the data for this study come from a unique single firm setting in real world practice, they are limited to one organization's set of acquisitions involving young startup firms. This type of design, although rich in its ability to provide focus, compromises some ability to generalize the findings across settings. This concern was weighed against the benefits of this type of design. The current study design provided the opportunity to examine rich data on the impact of managers in a partially controlled setting during and after a series of growth oriented acquisitions. The data also provided the opportunity to analyze data over multiple points in time providing a richer opportunity to better assess the findings over time.

CONCLUSION

As seen in the vast body of acquisition research as well in the forecasts of public economic and financial groups (Forbes, Fortune, etc.) the role of acquisitions, and especially the acquisition of startup firms, is an important strategic choice for many established firms (Zendrian, 2009). Existing firms target acquisitions for growth while at the same time entrepreneurial firms tend to target being acquired as one option to quickly gain access to needed resources, both tangible and intangible, for continued growth. Due to the resources and time required by established firms to innovate and continue to grow, the projected future focus of many acquisitions is on innovative entrepreneurial startup firms as a growth strategy (Lee & Lieberman, 2010).

The focus of this study is on the role that founders of acquired entrepreneurial startup firms can play post-acquisition specifically in regards to the human capital of the acquired firms. This study's primary contribution is the finding that founders can be a critical resource to the acquiring firm and can play an important role in post-acquisition success of entrepreneurial acquisitions primarily through culture and employee commitment. It is well accepted that acquisitions have limited financial success for the acquirers as measured in existing research (King et al., 2004). As organizations look to acquisitions as a future growth strategy, the ability to understand factors that can lead to successful entrepreneurial acquisition and post-acquisition success factors will become increasingly important.

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ASSESSMENT OF THE CURRENT ISSUES IN HIGHER EDUCATION IN RELATION TO INDUSTRY 4.0

Gina Cook, Metropolitan State University of Denver
Květa Olšanová, University of Economics, Prague

ABSTRACT

This paper investigates the current trends facing higher education in relation to the adoption of new digital technologies known as Industry 4.0. As the complexities associated with Industry 4.0 (specifically the Internet of things, big data and analytics, robotic systems/AI, and additive manufacturing) exacerbate the challenges associated with the supply and demand of skills, which may also be affected by cultural specifics, the aim of this paper is to focus on exploring the opportunities to foster preparedness and agility in cross-cultural education within contemporary, internationalized higher education institutions. Various teaching methods that are evolving and currently being used or tested in Europe and the United States are considered. In addition, a theoretical research framework is designed to explore to what extent university business students are aware of the meaning and components of Industry 4.0, whether they have actual experience with the identified learning environments, and what is their actual exposure to practicing the set of skills identified as imperative for Industry 4.0 within the context of their higher education.

INTRODUCTION

Industry 4.0 (4IR) is "sometimes described as an incoming thunderstorm, a sweeping pattern of change visible in the distance, arriving at a pace that affords little time to prepare. While some people are ready to face the challenge, equipped with the tools to brave the change and take advantage of its effects, others do not even know a storm is brewing" (Deloitte, p. 8). 4IR is said to involve a fusion of technologies that obscures the distinction between the physical, digital and biological worlds, and it is occurring at an unprecedented pace. This process is taking place in an increasingly globalized world and will have a profound impact on the future of work. In particular, there are far reaching repercussions for today's global youth population.

Given these implications, it is obvious that there are significant impacts on today's educational arena, and new and growing demands for preparedness and agility. In response to the massive technological developments associated with Industry 4.0, professional services firm Ernst & Young has introduced the term *Education 4.0*, which is focused on building a new approach to higher education.

Higher education today has become a global industry, yet many institutions have yet to (fully) embrace internationalization. Nevertheless, higher education as a whole is being impacted by 4IR in unprecedented ways, in particular by the need to prepare students for jobs that don't yet exist. How prepared is higher ed. to deal with this trend? What changes can be seen? What methods are being used to prepare students for these trends? And as the future leaders of tomorrow, how aware of and prepared for 4IR are today's business students?

This paper will explore current trends that higher education is facing in relation to the adoption of new digital technologies known as Industry 4.0, and do so within the globalized context. The authors are particularly interested in the preparedness of today's business students. It is our intention to do primary research with an international group of university undergraduate and graduate students currently enrolled in business-oriented majors, in order to understand their present familiarity with Industry 4.0, their exposure to acquiring the skills needed for 4IR within the context of their higher educational experience, and to investigate their exposure with the learning environments, as identified as potentially useful for facilitating the internationalization of education. Thus, within the framework of this article, we intend to develop a theoretical research framework intended for investigation of these topics with an international sample of students, as specified above.

THE 4TH INDUSTRIAL REVOLUTION - INDUSTRY 4.0

The term *Industry 4.0* comes from the German government-driven high tech strategy demonstrating the potential of the Fourth Industrial Revolution (4IR), where all processes and products are digitalized and automated. The complex processes in Industry 4.0 complicate the challenge associated with the supply and demand of skills (Deloitte, 2018), in particular because 4IR will impact how humans and technology interact as well as where and when work is done.

According to the World Economic Forum, the Fourth Industrial Revolution will contribute to shifting patterns of labor from intensive production to knowledge-based and skills-intensive production. Nations will require a sufficient supply of adequately skilled labor capable of immediately adopting and utilizing the emerging technologies. Education curricula and learning objectives "will need to be revised to produce different outcomes, such as new courses for teaching digital skills and more STEM" graduates (WEF, 2018, p. 23). Current and future students will work in a global and virtual world. Thus, in preparation for educating the ultra-technology oriented Generation Z, the potential of online pedagogies with technology included in course design should be fully explored (Andert & Alexakis, 2015).

As there is a growing gap between the needs of the business community and the level of workforce preparedness, it is becoming ever more important to find effective ways to address this disparity. According to Deloitte (2018), continuous lifelong learning will be an important component of the answer as it provides a foundation for growth, with a focus on soft skills (i.e. creativity, complex problem solving, relationship building, communication, emotional intelligence, and critical thinking, enriched by courage, resiliency, adaptability, and resourcefulness), workforce readiness, technical skills and entrepreneurship. Furthermore, they emphasize that the acquisition of soft skills "can be impacted by culturally specific constructs" (p. 17). This has an implication on the needs for cultural agility within the workforce and internationalization of educational curricula.

EDUCATION 4.0

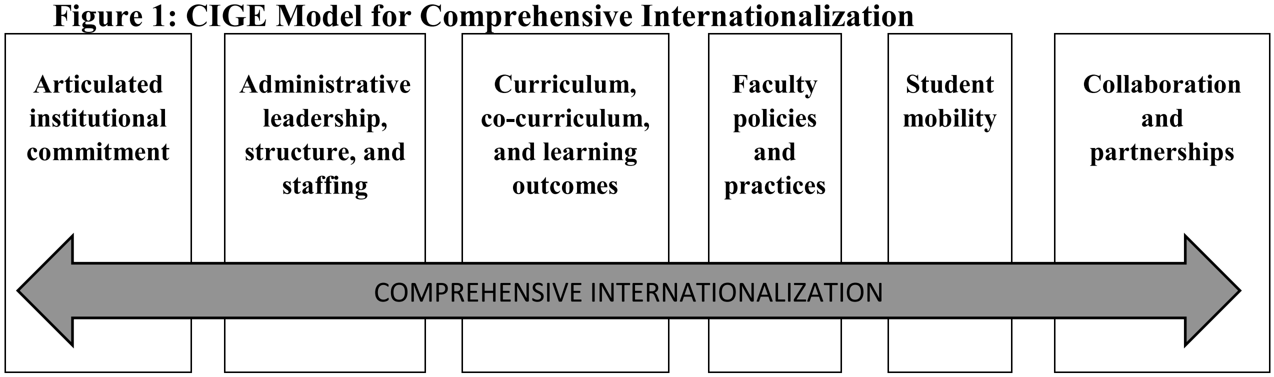
In response to the advent of Industry 4.0 and its many implications on the global environment, Ernst & Young (E&Y) has introduced the term *Education 4.0.* Various trends such as the advancement of technology, growing needs for competency-based skills and the increasing number of non-traditional learners have furthered its development as well. More significant changes to the industry of higher education are looming on the horizon. There is a shift towards placing the learner at the center of the focus, and more emphasis being placed on learning rather than teaching. A shift from traditional student learners to lifelong education is also underway (E&Y, 2018).

Education 4.0 aims at building a new approach to university education and is supported by four key drivers: employability (not employment), student experience, research and society. "With rapidly-changing industry environments, there is even a greater need for academia to match outcomes with industry demands. Learners today need to be equipped with employability skills that are transferable across a broad range of job opportunities…" (E&Y, p. 6). Collaboration becomes a key aspect of success. In fact, the approach emphasizes collaboration within universities as well as cooperation between universities and industry representatives, learning from multiple sources including using emerging technologies such as augmented reality (AR) and virtual reality (VR), and a focus on life-long learning (E&Y, 2018). Naturally, given the interconnected nature of today's international business world, there are also significant implications on higher educational institutions at a global level.

INTERNATIONALIZATION OF HIGHER EDUCATION

Internationalization of higher education (IoHE) is defined as "the process of integrating an international, intercultural or global dimension into the purpose, functions (primarily teaching/learning, research, service) or delivery of higher education" (Knight, 2004, p. 7). The American Council on Education's Center for Internationalization and Global Engagement (CIGE) has been conducting a longitudinal research project over the last two decades focused on internationalization within higher educational institutions (HEIs) in the United States. CIGE defines *comprehensive internationalization* as "a strategic, coordinated process that seeks to align and integrate international policies, programs, and initiatives, and positions colleges and universities as more globally oriented and internationally connected institutions" (Helms et al., 2017, p. 11). In addition, they specify that internationalization requires top management support as the primary driver, has a broad impact across the university's activities and curriculum, and includes an ongoing effort to include international perspectives (Helms et al., 2017). CIGE further defines a Model for Comprehensive Internationalization, which has six interconnected dimensions; see Figure 1.

Figure 1: CIGE Model for Comprehensive Internationalization



Source: adapted from "Mapping Internationalization on US Campuses: 2017 Edition", p. 13.

According to the 2016 CIGE Mapping Survey, internationalization at US-based institutions continues to grow, both in terms of momentum as well as scope. Nearly one-third of reporting institutions indicated *high* or *very high* levels of internationalization (up from only 20 percent in 2011). "Improving student preparedness for a global era" is cited as the top reason for internationalization efforts at HEIs. In terms of activities which facilitate the internationalization process, the top five priorities include (Helms, Brajkovic, & Struthers, 2017, p. 15):

1. *Increasing study abroad for U.S. students*
2. *Recruiting international students*
3. *Partnerships with institutions abroad*
4. *Internationalizing the curriculum/co-curriculum*
5. *Faculty development*

Within the European context, it is the ERASMUS program in particular that has been the impetus for the growth of internationalization over the past three decades. The program helped to create a common understanding of the internationalization concept across nations, and it was also a key driver. The Bologna Process was also a significant factor. Europe is often seen as a model for internationalization of higher educational institutions, but even within the EU, there are still a lot of opportunities for development. In particular, there is evidence of uneven levels of implementation across the various nations, and in some countries, significant challenges remain. There are also major external challenges to IoHE within the social / cultural and economic environments, such as the financial crisis, ethnic tensions and immigration pressures (de Wit, Hunter, Howard, & Egron-Polak, 2015).

Traditionally, HEI institutions have an external orientation to their internationalization efforts, and concentrate their energies primarily on student mobility, or study abroad opportunities. This continues to be true; nevertheless, given recent demographic changes to the profile of today's students, paired with an increasingly globalized world, there is also growing interest and need for academic programming that facilitates on-campus global learning on a wider scale and across a greater range of students. According to the Institute of International Education (2016), fewer than one in ten U.S. undergraduate students have the opportunity to participate in a study abroad experience. Thus, increased institutional focus on Internationalization at Home (IaH) activities is one way to enable the acquisition of global competencies to the large majority of students who are not able to participate in traditional international mobility programs.

Technology is an important factor to consider when it comes to internationalizing curriculum. According to the CIGE Mapping Survey (Ward, 2016), there is a growing trend to consider and potentially use some type of technology (e.g. video, online learning programs, etc.) to facilitate collaboration between a home campus and international partners. Nevertheless, this still remains a minority of institutions involved, and tends to be those that are already significantly down the pathway toward being highly internationalized. Varying degrees of technological readiness for the digital revolution also remain across nations. All the same, governments, educators and the private sector alike are recognizing the value of global competencies as *key to lifelong success* (Ward, 2016). Thus there is space to investigate current ways technology is being used to advance internationalization within institutions, particularly as a means to providing meaningful global, cross-cultural learning, as well as student awareness and experience with these forms of cooperation via technology.

LEARNING ENVIRONMENTS

Virtual learning environments (VLEs)

Virtual Learning Environment, as defined by Sinaygaye, is "a software system designed to facilitate teachers in the management of educational courses for their students, especially by helping teachers and learners with course administration. The systems can often track the learners' progress, which can be monitored by both teachers and learners." This is used to supplement classroom teaching, rather than as distance education. In other words, it can be explained as a computer program that facilitates computerized learning or e-learning (Sinayigaye, 2010, p. 2).

Use of a collaborative virtual learning environment in higher education was tested by Schuster et al. through three qualitative studies. Firstly, they tested which kinds of VLEs students preferred in the higher education context. The results showed that students equally preferred realistic (e.g. factory simulations) and fictional scenarios (e.g. traveling through a factory from the product perspective). Students appreciated the intuitive and natural virtual environment and positively valued the possibility to get instant feedback and occasionally expressed the concern of distraction from the task due to many different VLE features. In the second stage of the research, a collaborative VLE was created using a Minecraft environment where students and additionally professional trainers were supposed to solve specific tasks without knowing the necessary steps. The importance of communication within the virtual environments was indicated. The age of participants was highlighted as affecting participants' spatial coordination in the VLE, though the initial difficulties were reduced by a thorough introductory phase (Schuster, et al., 2018). "Companies who know how to collaborate in virtual environments efficiently will have a strong competitive advantage compared to those who don't. Continuing this kind of research therefore is an important contribution towards a globalized, connected and digitalized working world in terms of Industry 4.0" (Schuster, et al., 2018, p. 19).

Virtual reality (VR) and immersive VLE

Janssen et al. indicate that virtual environments (VE) provide an opportunity for practical experience in higher education. Moreover, they emphasize that connection of VEs and VR provide the experience of theoretical knowledge, use and application of technological media, virtualization of processes and working environment in a field of Industry 4.0 (Janssen, Tummel, Richert, & Isenhardt, 2016). Immersive learning in connection to VR is explained by Murray's definition of immersion as "a state, in which a user is surrounded by another reality claiming his full attention" (Murray, 1997, pp. 98-99). To confirm the assumption that applying VR technologies in teaching and learning scenarios can increase the students' learning experience to a more immersive and engaging involvement in the learning process, Janssen et al. conducted research to measure user experiences in immersive VLEs and their relation to task performance. The results of Janssen's study have shown that individual traits and characteristics influence the experience of a user in a immersive VLE, whereas the individual user traits (age, gender, experience with digital games) need to be further explored; however, it is expected that for some users, learning in an immerse VLE has a greater benefit than for others (Janssen et al, 2016).

There are examples of VR and immersive VR implemented in privately developed products and used by educational, business and governmental organizations. Alelo Inc., as an example, provides an AI-driven Enskill platform to learn cross-cultural skills, soft skills, and workplace decision-making skills. Alelo Inc. has recently partnered with eThink Education LLC to deliver AI-based life-like immersive learning experiences. This partnership combines Alelo's artificial intelligence-based learning modules into eThink's custom-built learning management systems (PR Newswire, 2019).

Besides VR and immersive VLE, Ahmed and Sutton explore gamification as a collection of techniques that may be applied to the educational and workplace activities, provided that game-based learning must align with the learning goals and outcomes of training and development, and clearly demonstrate that learning can be evaluated and achieved. Game experiences generate "an attitude of acceptance of the challenge, motivation to achieve and constant innovation through participant commitment" and thus drive personal change and transformation (Ahmed & Sutton, 2017, p. 78).

Virtual Mobility (VM) or Collaborative online international learning (COIL)

Virtual Mobility is a term that originates in Europe, and relates to types of student mobility outside of traditional study abroad, exchange or double degree possibilities. The focus is not only on catering to student populations that are traditionally mobile, but also to those that are not. In other words, how does one provide an international experience to non-traditional and/or non-mobile students (de Wit, 2013)? It can also be understood as a way to internationalize curricula across a broad variety of subjects. VM is more commonly known as COIL, or *collaborative online international learning*, in the United States. According to the SUNY COIL Center, COIL is not just about technology, but is also said to be an amalgamation of the four important dimensions of real virtual mobility: "it is a *collaborative* exercise of teachers and students; it makes use of *online* technology and interaction; it has potential *international* dimensions; and it is integrated into the *learning* process" (Rubin & Wilson, p. 5).

Cross-cultural agility involves the ability to work effectively with culturally diverse teams, the ability to incorporate various perspectives and superior communication skills. Cross cultural teamwork activities can contribute to acquisition of these important skillsets. While this type of activity can be facilitated in person, it may also occur through experiential, international teamwork via virtual platforms. Within the realm of business studies, while limited in number thus far, there are examples of international, cross-cultural exercises where students work together with students from other countries through virtual teamwork (Duus & Cooray, 2014). Per Erez, as quoted in Duus & Cooray (2014, p. 244), this "requires students to work across time zones, engage with different cultural perspectives and business practices, and working styles and approaches."

For example, an Experiential Cross-Cultural Exercise (ECCE) was designed and implemented by Duus & Cooray for undergraduate marketing students in a product innovation course, involving cooperation between two universities in the UK and India. The course involved a week-by-week activity plan including interim report submissions, presentations and collaborative activities leading to the successful design and launch of a new enterprise in Delhi. Qualitative assessment was done based on content analyses of students' reflective journals. Results demonstrate that students responded positively to the experience and that they can see benefits for future employment. Several challenges were also reported, involving both student and instructor-related aspects, particularly with regard to the time and effort towards designing, organizing and delivering the ECCE (Duus & Cooray, 2014).

DEVELOPMENT OF THE RESEARCH METHODOLOGY

The authors have developed a research framework which they intend to implement in a survey with an international sample of university students enrolled in business-oriented study programs. The survey has three primary areas of focus; thus its goals are to:

1. *Identify to what extent students are aware of the meanings and components of the term "Industry 4.0";*
2. *Investigate their exposure to acquiring the set of skills identified as imperative for Industry 4.0 within their higher education process;*
3. *See whether the students have actual experience with the learning environments identified as potentially useful for internationalization purposes.*

As the authors intend the sample to be international in scope, they have elected to include six demographic questions focused on the following aspects: gender, age, nationality, highest level of education achieved, major, and location of university education.

Survey responses will be captured using a 4-point Likert scale. Both familiarity and experience scales are consistent with OECD 2018 PISA measures (OECD, 2018).

Technical aspects related to familiarity with Industry 4.0 within the survey include *Internet of things*, *Big data and/or analytics*, *Artificial intelligence* (AI), and A*dditive manufacturing (3D printing)*. Survey questions in this section will concentrate on frequency of exposure.

The inclusion of skillsets deemed necessary to succeed are based on the aspects included in the *Preparing tomorrow's workforce for the Fourth Industrial Revolution for Business, A Framework for Action* report by Deloitte and also those specified by OECD's Programme for International Student Assessment (PISA), which tests teenage students around the world every three years in key subjects needed to prepare themselves for real-life situations in the adult world. The variables in our questionnaire include: *complex problem-solving skills, building relationships with peers, improving communication skills, critical thinking skills* and *emotional intelligence* skills. The set of skillsets is consistent with the above-mentioned Deloitte report (Deloitte, 2018).

The emotional intelligence (EQ) skills included in the survey are based on those variables included in the *Preparing tomorrow's workforce for the Fourth Industrial Revolution for Business, A Framework for Action* report by Deloitte, as well as those identified by Daniel Goleman in his 1998 Harvard Business Review article on emotional intelligence, entitled "What makes a leader?" The EQ dimensions include the following: *Self-awareness, self-regulation, social skills, empathy and motivation.*

The questionnaire is also designed to investigate students' familiarity and actual experience with the learning environments (LEs) identified as potentially useful for internationalization efforts at institutes of higher education (HEIs). These LEs include: *Virtual Learning Environment, Virtual Reality,* and *Collaborative Online International Learning (COIL) / Virtual Mobility.*

EXPECTED RESULTS AND CONTRIBUTIONS TO PEDAGOGY

Within the three major topic areas of the survey, the authors expect that students will have the highest level of exposure to the second component, i.e. the set of skills identified as being imperative for Industry 4.0 These include areas such as complex problem-solving expertise and relationship development skills, as well as those regarding emotional intelligence, critical thinking and communication.

It is anticipated that students may have heard of the term *Industry 4.0* but that they will have very limited awareness of what this entails, and even less personal exposure or academic experience with it. Furthermore, other than potential exposure to *virtual reality* via gaming, the authors anticipate that students will have little to no awareness or experience with the learning environments identified earlier in this paper.

Therefore, with our study, we hope to gain a better understanding of students' actual level of knowledge regarding Industry 4.0 and their preparedness for dealing with its ramifications. As our study will be international in scope and focus primarily on students enrolled in business related graduate and undergraduate programs, it is our intention to add to the existing body of knowledge with a current study. Thus we might begin to better understand some gaps in knowledge that could be more effectively addressed by business programs.

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THE ROLE OF IMAGE NORMS ON THE CAREER EXPERIENCES OF GENERATION A

Amy E. Hurley-Hanson
Cristina M. Giannantonio
Amy-Jane Griffiths

Chapman University

ABSTRACT

This paper explores the role of image norms on the career experiences of Generation A. Generation A refers to the half-million individuals with Autism Spectrum Disorder (ASD) who will reach adulthood in the next decade and who are expected to transition into the workforce (Hurley-Hanson, Giannantonio, & Griffiths, 2019). While there is relatively little research on the careers of individuals with ASD, the life and work outcomes for individuals with autism have been found to be less favorable than those for the general population (Griffiths, Giannantonio, Hurley-Hanson & Cardinal, 2016). Stereotypes about individuals with autism, as well as image norms about the occupations, organizations, and industries perceived as appropriate for individuals with ASD, may play a role in the career experiences of Generation A. Image norms are beliefs that individuals must present images that are consistent with occupational, organizational, or industry norms in order to be hired or promoted (Giannantonio & Hurley-Hanson, 2006). With Generation A poised to enter the workforce in unprecedented numbers, research is needed to understand the role of image norms on the career decisions, career experiences, and career outcomes of individuals with ASD.

INTRODUCTION

Previous research suggests that the life and work outcomes for individuals with autism are less favorable than those for the general population (Griffiths, Giannantonio, Hurley-Hanson & Cardinal, 2016). These include higher rates of unemployment and underemployment, multiple movements in and out of the labor force, and lower employment outcomes (e.g., salaries and promotions) in comparison to neuro-typical peers. Despite these findings, there is relatively little research on the career experiences of individuals with ASD. This may be due to several factors. The high unemployment rate for people with autism makes it difficult to conduct longitudinal careers research on these individuals. Limited research on the careers of individuals with ASD may also result from individuals with autism not following traditional career paths. Additionally, some individuals with ASD may not have been diagnosed with autism, while others may not be comfortable disclosing a diagnosis of autism in the workplace. Stereotypes about individuals with autism, as well as image norms about occupations, organizations, and industries perceived as appropriate for individuals with ASD, may play a role in the career experiences of Generation A. This paper will discuss the construct of image norms and the role they may play on the career experiences of individuals with ASD.

IMAGE NORMS

While researchers have explored the effects of physical attractiveness on careers (Stone, Stone & Dipboye, 1992), the role image plays in career success has received limited academic attention. *Image* is defined as the totality of an individual's personal appearance. It is a broader construct than physical attractiveness, encompassing several dimensions of attractiveness. Historically, much of the physical attractiveness research has focused on specific physical characteristics such as height (Miller, 1986), weight (Furnham, Tan & McManus, 1997; Henss, 1995, 2000; Singh, 1993a,b, 1994a,b, 1995), clothing (Sullivan, 1997), facial beauty (Synnott, 1990), and handicapped status (Colella, DeNisi & Varma, 1997). The role of physical attractiveness in employment decisions has received fairly strong research support (Stone, Stone & Dipboye, 1992). Physical attractiveness has been associated with more favorable educational (Ritts, Patterson & Tubbs,1992), occupational (Dipboye, Fromkin & Wiback, 1975; Quereshi & Kay,1986; Cairn, Siegfried & Pearce, 1981; Gilmore, Beehr & Love, 1986; Morrow, McElroy, Stampe & Wilson, 1990; Frieze, Olson & Russell, 1991; Roszell, Kennedy & Grabb, 1989), and life (Adams, 1977) outcomes on a number of dimensions. One meta-analysis (Hosoda, Stone-Romero & Coats, 2003, p. 436) suggests that "although attractiveness may not be the most important determinant of personnel decisions, it may be the deciding factor when decision makers are faced with difficult choices among job applicants or incumbents who possess similar levels of qualifications or performance".

The role of image in career success offers one avenue for extending the research on physical attractiveness. Examining the effects of image - a more generalized operationalization of physical attractiveness (Dollinger, 2000) - may increase our understanding of the role of appearance in career outcomes such as hiring and promotion. It is suggested that career outcomes may be based on a more general assessment of an individual's image, rather than an evaluation of any one specific physical characteristic. This suggests that while an individual may be physically attractive, they may not possess the appropriate image for certain jobs, companies, or industries. Image may be more likely to influence perceptions of person-job or person-organization fit than absolute levels of physical attractiveness. Recruiters' evaluations of applicants are likely to include perceptions of the match between an applicant's image and the job and company they are recruiting for.

These perceptions of what constitutes a match are hypothesized to become the basis for image norms. An *image norm* is the belief that individuals must present a certain image, consistent with occupational, organizational, or industry standards, in order to achieve career success. The formation of image norms from both an individual and an organizational perspective is examined in this paper. The effects of image norms on the career experiences of individuals with ASD are also considered.

THE INDIVIDUAL PERSPECTIVE

The image norms that individuals form may operate to influence occupational and organizational choice decisions throughout their careers. Image norms may form as individuals develop several separate (but not mutually exclusive) sets of perceptions regarding personal appearance and image. First, individuals form perceptions about their own image. This includes perceptions of their personal appearance and physical attractiveness. These perceptions may influence individuals' beliefs about whether they are likely to be successful if they pursue different occupations. For example, awareness of one's physical attributes (e.g. height, weight, strength, flexibility, and endurance) are likely to influence an individual's beliefs about whether they will be able to meet the physical requirements and demands of various jobs. Perceptions of one's personal appearance and physical attractiveness while more subjective than height or weight, may also serve to influence beliefs about the likelihood of success in occupations where projecting a certain image is perceived as necessary for being hired and promoted.

Another set of beliefs individuals may develop involve perceptions about the importance of image in various occupations. These perceptions are likely drawn from occupational stereotypes. Research suggests that children hold broad stereotypes about jobs that allow them to differentiate between occupations (Martin & Gentry, 1997). Occupational stereotypes may include beliefs about the importance of image in specific jobs. Such stereotypes may become the basis for image norms, whereby individuals believe that people must possess a specific image to work in certain occupations. Individuals' perceptions of these requirements may influence the decision to pursue or avoid certain occupations. While these perceptions are likely developed in the exploration stage of career development (Cron, 1984), such beliefs may be reinforced in later stages of career development as well.

Image norms may also arise from one's own experiences; messages from family, friends, and one's social network; and images portrayed in the media. One's own experiences in occupational exploration may contribute to image norm formation. During the early stage of career exploration, individuals will meet people who occupy different job categories. These individuals may serve as prototypes of what "typical" persons in different jobs look like. For example, if the job incumbent is physically attractive, the individual may assume that physical attractiveness is a requirement for entry or advancement in that occupation.

A second source of occupational image norms may arise from messages sent by family, friends, and one's social network. Family, friends, and others in one's social network may express their beliefs about the importance of personal appearance in certain occupations. Comments such as "People need to be pretty to work on television." may shape the young adult's perceptions of the importance of image to succeed in certain occupations. As career aspirations are expressed, family, friends, and others in the individual's social network may share their opinions about the individual's likelihood of success in the chosen occupation. Messages such as "You're too short to be a police officer." or "You're not pretty enough to be a model." are likely to shape one's image norms about specific occupations.

Occupational image norms may also arise from messages conveyed by the media. Occupational images may be found in newspapers, magazines, advertisements, television shows, videos, movies, and throughout the internet. Visual images of jobs may reinforce the occupational stereotypes held by adolescents and become the basis for image norms. Messages from the media may send strong signals about occupational image norms.

Individuals may develop beliefs about the role of image in specific organizations. Beliefs about the importance of image in different companies may arise from individuals' perceptions of an *organization's* image. The term organizational image has been used to describe general impressions of a company. Tom (1971) defined image as the way that people perceive an organization, consisting of their knowledge, beliefs and feelings about an organization. Others have described organizational image as a reaction to the company's name (Gatewood, Gowan & Lautenschlager, 1993) or as a set of attributes about a company (Belt & Paolillo, 1982). Given the uncertainty inherent in the job search and choice process, job applicants may be attracted to companies with favorable organizational images (Barber, 1998). More importantly, job applicants may rely on such images to determine their potential fit with a particular company (Greenhaus, Callanan & Godshalk, 2000).

Once image norms are formed, they may operate to influence the occupational and organizational choice decisions of individuals throughout their careers. The work of two theorists, Victor Vroom and Donald Super, may provide partial explanations for the effects of image norms on occupational and organizational choice. Donald Super (1957) suggests that individuals attempt to implement their self-concept through occupational choice. In other words, the choice of an occupation allows us to play a role that is consistent with our self-concept.

Super (1957) defines the self-concept as "the individual's picture of himself". This picture includes the attributes we believe define us, such as our abilities, personality traits, and values. Abilities may be broadly defined to include both physical and mental characteristics. Individuals perceive themselves to possess a number of physical (e.g. "I am strong.") and mental (e.g. "I am good with numbers.") abilities. Most people also hold perceptions about their own level of physical attractiveness. Irrespective of accuracy, these perceptions may influence (or constrain) the number of occupations that are considered as allowing for the implementation of the self-concept.

Expectancy theory (Vroom, 1964) may also explain how image norms operate to influence occupational choice. Perceptions about one's own level of physical attractiveness may operate as expectancy beliefs in Vroom's model. If an individual does not believe that they are attractive enough to succeed in an occupation (and they believe that physical attractiveness is a necessary requirement for entry or advancement in that occupation), then the person is not likely to choose that occupation for their career. Vroom's theory may explain the role of image norms in organizational as well as occupational choice. If an individual does not believe that they project the image necessary to be hired by or to advance in an organization, then the person is not likely to choose that organization for their career. Occupational image norms may be conveyed in several ways, including comments by recruiters and other organizational representatives. Significant others in one's social network may also share their experiences regarding image norms within specific companies. Messages about the importance of physical attractiveness may be sent directly by the organization itself, or indirectly through media reporting on that company. For example, Disney's appearance standards for cast members are well known in the entertainment and hospitality industry (Boje, 1995).

This suggests that individuals may develop beliefs about the role of image in different industries. The importance of physical attractiveness and personal appearance varies greatly by industry. Industry stereotypes suggest that certain industries (e.g. fashion, beauty, television, and movie) are more glamorous than others (McDonald, 2003). Having a successful career in a glamorous industry is partially predicated on meeting cultural norms of facial beauty and body standards. This illustrates the fact that image norms exist at the organizational level and industry level. The next section of the paper examines image norms from the organization's perspective.

THE ORGANIZATIONAL PERSPECTIVE

Image norms may exist at the organizational level, as well as at the individual level. Organizational image norms may influence the selection, promotion, and reward decisions made by corporate decision-makers. A company's organizational image may contribute to the formation of image norms. Perceptions about the types of people who work for a company (Dutton & Dukerich, 1994) may become the basis for image norms. For example, individuals hold beliefs about the company's desire to hire a workforce with a certain image; the role of image in advancing one's career in that organization and general beliefs about the importance of projecting a specific image in order to work for the organization. The belief that image is a hiring requirement in certain organizations or is necessary for advancement has important consequences for organizations. These beliefs may result in applicant self-selection into or out of those companies. Self-selection may operate because job applicants rely on organizational images to determine their potential fit with specific companies (Gatewood, Gowan & Lautenschager, 1993).

Organizations contribute to the formation of image norms in a number of ways. Companies may send direct messages to candidates about the importance of projecting a certain image in hiring and promotion decisions. Explicit comments about the "appropriateness" of a candidate's appearance are likely to be more common in some industries than others. Organizations may outline appearance requirements in employee handbooks or during employee orientation sessions. Dress codes and company uniforms provide employees more explicit guidelines regarding image norms within a company.

An organization may indirectly send messages about the importance of image through its choice of recruiters and other organizational representatives. Recruitment research on the signaling hypothesis illustrates the important role of recruiters in shaping applicants' perceptions of hiring organizations (Giannantonio, Hurley-Hanson, Segrest, Ferris & Perrewe, (2019); Goltz & Giannantonio, 1995). The recruiter's image may send signals about the company's desire to hire a workforce with a certain image or the role of image in selection decisions.

Visual images of other organizational representatives may be found in the company's recruiting materials including print material and images on their website and social media. These visual representations of the company's employees may send signals to applicants about the gender, racial, and age composition of the workforce. They may also reinforce stereotypes about the physical attractiveness of a company's workforce and the desired image a company wishes to portray.

Finally, organizations may attempt to create a specific organizational image in the minds of potential applicants and other constituents by engaging in image advertising (Barber, 1998). Image advertising is focused on attracting future applicants to the company itself; it does not necessarily involve advertising for specific job openings. Such advertising could establish a perceived relationship between personal appearance and the company's organizational image, resulting in the creation of image norms.

Companies may use image as a hiring requirement or as the basis for advancement in their company. How directly or subtly this information is conveyed to applicants and organizational members may be difficult to measure. The importance of image and physical attractiveness in hiring and promotion decisions may be expected to vary according to whether the company is in a glamorous industry (McDonald, 2003).

IMAGE NORMS AND ASD

Little is known about the role of image norms on the career experiences of Generation A. Moreover, little is known about whether and how individuals with ASD form image norms, and how those image norms may impact perceptions about occupations, organizations, and industries. Conversely, image norms about individuals with ASD, in their role as applicants or employees, may be held by internal (e.g. coworkers, managers, direct reports) and external organizational stakeholders (e.g. customers, vendors, local community). These image norms are likely to influence whether an organization's corporate culture is perceived as inclusive to individuals with ASD.

Image norms may influence the career decisions of individuals with ASD throughout their life span. Understanding the effects of image norms across careers has important implications for individuals with ASD and the organizations that employ them. Each of the types of image norms discussed in earlier sections of the paper has the potential to influence the career decisions and career outcomes experienced by Generation A.

Perceptions About Own Image

Little research has examined the image norms that individuals with ASD hold about various occupations and their beliefs that individuals must possess a certain image if they are to succeed in a specific occupation. These beliefs likely reflect occupational stereotypes that formed in the early stages of career development (Hartung, Porfeli & Vondracek, 2005; Martin & Gentry, 1997; Gottfredson, 1996). The belief that possessing a certain image is a requirement for success in an occupation may influence Generation A's decision to pursue or to avoid certain jobs and occupations. For example, if children with ASD do not see adults with ASD successfully performing a variety of jobs, they may not feel that they can select these occupations for themselves, or they may limit the scope of occupations that are considered as personally viable.

Perceptions of Occupational Images

Little research has examined the image norms that individuals with ASD hold about various occupations and their beliefs that individuals must possess a certain image if they are to succeed in a specific occupation. These beliefs likely reflect occupational stereotypes that formed in the early stages of career development (Hartung, Porfeli & Vondracek, 2005; Martin & Gentry, 1997; Gottfredson, 1996). The belief that possessing a certain image is a requirement for success in an occupation may influence Generation A's decision to pursue or to avoid certain jobs and occupations. For example, if children with ASD do not see adults with ASD successfully performing a variety of jobs, they may not feel that they can select these occupations for themselves, or they may limit the scope of occupations that are considered as personally viable.

While high schools often offer assessments to help students become aware of their occupational preferences, most do not offer assessments specifically designed for students with ASD. The occupational and organizational image norms formed in the exploration stage likely arise from the young adult's own experiences with the world of work through part-time jobs, summer jobs, and internships (Feldman & Whitcomb, 2005), formal sources of occupational information (Hartung, 1996), and recruiting and public relations materials provided by organizations (Gibson, 2004).

Little is known about the effects of occupational images on individuals with ASD and their occupational choices. Research is needed that examines how individuals with ASD experience early career stages such as career exploration, and how occupational image norms influence occupational choice. Additionally, assessment instruments need to be developed specifically for individuals with ASD to identify the interests, values, and skills they possess. It will be essential to help these individuals identify the full range of jobs and that match their career interests to reduce the possibility of underemployment.

Perceptions About Organizational Images

Little research has examined the image norms that individuals with ASD hold about different organizations and their beliefs that individuals must possess a certain image if they are to succeed in a specific company. These beliefs likely reflect organizational stereotypes and perceptions of companies' images. The term organizational image has been used to describe the general impressions of a company. Tom (1971) defined an organizational image as the way that people perceive an organization, consisting of their knowledge, beliefs, and feelings about a company. Others have described an organizational image as a reaction to the company's name (Gatewood, Gowan & Lautenschlager, 1993) or as a set of attributes about a company (Belt & Paolillo, 1982). Companies may prefer to hire and retain employees whose image is consistent with their organizational image. Research suggests that individuals may rely on an organization's image as one factor in determining their potential fit with a particular company (Greenhaus et al., 2010). Research is needed to understand how individuals with ASD form impressions about organizations that are perceived to be a good fit for individuals with ASD in general, as well as, specifically being a good fit for them personally.

Companies produce recruiting and public relations materials that portray their preferred organizational image. These materials include websites, job advertisements, product advertisements, and company brochures. If disabilities such as ASD are not included in these organizational materials, young adults with autism may perceive that they do not fit the image norm of the company. The concept of image norms introduces a much larger social construction of the image of what an individual working at a specific company should be. It may include physical and personality characteristics, as well as intellectual and physical abilities/disabilities (Giannantonio & Hurley-Hanson, 2006).

Image norms about employees with autism may be held by coworkers, managers, and other organizational stakeholders and may operate within organizations to influence the hiring and promotion decisions made by corporate decision-makers. Image norms about employees with autism will play a role in determining whether an organization is committed to neurodiversity and the inclusion of individuals with ASD. Organizations that employ neurodiverse recruiters send signals about the company's desire to hire an inclusive workforce.

Perceptions About Industry Images

Little research has examined the image norms that individuals with ASD hold about different industries and their beliefs that individuals must possess a certain image if they are to succeed in a specific industry. These beliefs likely reflect industry stereotypes and perceptions of the image of various industries. This is not surprising since relatively little job search and job choice research has examined the role of industry preferences in career choice decisions. Research is needed to understand if industry image norms play a role in the career decisions of Generation A and how these types of image norms are formed.

CONCLUSION

This paper has explored the role of image norms on the career experiences of Generation A, the half-million individuals with Autism Spectrum Disorder (ASD) who will reach adulthood in the next decade and who are expected to transition into the workforce (Hurley-Hanson, Giannantonio, & Griffiths, 2019). Both individuals and organizations need to consider the effects of image norms on employment decisions. Individuals need to consider the effects of image norms on their occupational and organizational choices. Occupations and organizations may not be pursued if individuals with ASD believe internal and external messages about the importance of projecting a certain image for entry or advancement into certain jobs and companies. Applicant pools and labor market participation rates may be unnecessarily restricted if individuals with ASD self-select out of jobs and companies based on inaccurate image norms or inaccurate perceptions about their own image.

Image norms may also influence individuals' behavior in the job search process. Applicants may engage in numerous impression management techniques to enhance the perception that they meet the image norms required to work in certain jobs. Image norms may also play a role in the occupational and job choice decisions of individuals at several stages in their career. Greenhaus, Callanan and Godshalk (2000) suggest that effective career management includes engaging in career exploration and gaining an awareness of the self and the environment. Individuals' beliefs about their own image, as well as the perceived demands for projecting a specific image in certain occupations, organizations, and industries may influence the decision to pursue or avoid different career paths. Job incumbents may also engage in impression management techniques to increase their chances of promotion and advancement if they believe career success is dependent on meeting image requirements.

Organizations need to consider the effect of image norms on their selection, promotion, and reward decisions. Companies also need to consider how image norms are directly and more subtly communicated to candidates. Image norms may explicitly operate within organizations if physical attractiveness standards are applied to hiring and promotion decisions. Image norms may also operate in a more subtle fashion. Hiring and promotion decisions should be examined for signals about the perceived importance of image for entry and advancement in the organization. In times of labor shortages, it would be unfortunate to lose qualified candidates and valued employees because of misperceptions about hiring and promotion standards. Unlike earlier career system models where individuals hoped to stay with one company for their lifetime of work, newer career system models suggest individuals may see changing careers as important to their career success (Ackah & Heaton, 2003; Baruch, 2004). Because of this, organizations need to be very cognizant of the image they are portraying not just to potential applicants but also to current employees.

This paper has suggested that image norms play an important role on the career experiences of Generation A. An individual's image plays a significant role in how they are perceived and the image norms that some people hold about individuals with ASD. It should be recognized that some individuals with ASD may misperceive social cues, resulting in them displaying interaction behaviors that deviate from workplace norms, schemas, and scripts. These behaviors, if misunderstood by coworkers, may contribute to the image norms about and stigma sometimes experienced by employees with ASD. Implicit personality theory (Ashmore, 1981) suggests that once a person is classified into a category (e.g., a disabled person or a person with autism), the observer links a variety of personality characteristics to that individual (Pendry & Macrae, 1994). These personality characteristics may be used in subsequent employment decisions. Organizational decision-makers may be particularly vulnerable to these effects since most evaluation and judgment tasks in organizations require the processing of large amounts of information about a candidate or employee, usually under time pressures, without complete information about each person being evaluated. This suggests that an initial categorization based on ASD will affect subsequent employment decisions regarding these employees. This may help to explain the biases and stigma experienced by people with ASD in the workplace.

It may be difficult for people with ASD to overcome image norms and stigma in the workplace. Individuals with ASD may consciously or unconsciously violate organizational and occupational image norms. Following the careers of Generation A as they enter the workforce will provide rich and important data that will lead to improved career experiences for individuals with autism and the people they work with.

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LEGAL RISKS AND CONSIDERATIONS OF HIRING AND PROMOTING ON THE BASIS OF POTENTIAL

Apryl Brodersen, Eric Blomfelt and Elizabeth McVicker
Metropolitan State University of Denver

ABSTRACT

Businesses around the globe are facing challenges finding candidates with the "right" skills and abilities to fill specific employment openings. As a result, many employers are downplaying an emphasis on traditional qualifications and, instead, targeting candidates who have the "potential" to succeed, then providing the new employee with specific training for the job. This paper will explore the issues surrounding the legal risks and complications surrounding "potential" as an employment criterion. It will address challenges related to accurately defining, operationalizing, and evaluating the construct of potential, and the impact that this may have on recruiting, selection, and promotion, particularly with respect to older workers.

Despite a large pool of candidates over the age of 50 who seek new employment opportunities and job interviews, corporations and small businesses alike turn to online recruitment, using social media such as Facebook and LinkedIn to find job candidates. Employers create job ads and target them in a manner similar to how companies might target their products or services to certain customers. These targeted job ads can easily discriminate against older workers looking for new job opportunities. However, the Age Discrimination in Employment Act (ADEA) applies only to existing employees, leaving applicants with no legal protection. Nevertheless, case law makes clear that promoting within a corporation where characteristics such as "potential" or pure character calls on the part of the hiring specialist continue to be subject to the bright lines created by federal law such as the ADEA or Title VII of the Civil Rights Act of 1964.

INTRODUCTION

Worldwide, employers across industries are facing one of the biggest talent shortages in recent history. According to a survey conducted by the Society for Human Resource Management (2019), 83% of respondents reported difficulty in recruiting qualified candidates. A key factor contributing to this shortage is a growing gap between job requirements and candidate qualifications – 36% of employers report that applicants do not have the necessary technical skills to perform the job, and 35% cannot find candidates with relevant prior experience. Across respondents, 52% believe the skills gap has worsened over the last two years.

To address this challenge, many organizations are adopting a new strategy in their hiring and promotion practices – rather than focusing on traditional qualifications, companies are seeking out candidates who have the "potential" to succeed (Society for Human Resource Management, 2019; Cox 2019; Manpower Group 2018; O'Donnel, 2018). The underlying rationale is the belief that given the increasingly complex and dynamic nature of today's jobs, what one what one is capable of achieving is a greater predictor of performance than what one has achieved in the past. Thus, when making employment decisions, companies should look beyond job-specific credentials (such as education, experience, technical skills, and past performance) to consider factors that indicate the promise of success, such as transferrable skills, soft skills, and the individual's ability to learn, grow, and adapt. This approach is quickly gaining popularity: 44% of employers report they are recruiting outside the traditional talent pool, 29% have adjusted their education and experience requirements, and 54% are providing additional training/development opportunities for new hires and current employees (Manpower Group, 2018). However, it also brings risks, particularly with respect to the legality and fairness of employment practices that are based on candidate and employee "potential."

This paper will discuss the key legal and ethical considerations of a "hire for potential" approach and the implications it might have on a company's staffing process. It will address challenges related to accurately defining, operationalizing, and evaluating the construct of potential in a way that is both fair and legally compliant. It will also include a discussion of the legal considerations that hiring for potential can have on key staffing practices, particularly with respect to age-based discrimination. The paper will conclude with a summary of recommendations of best practices if considering using potential as a hiring criterion.

LEGAL CONCERNS WITH DEFINING AND MEASURING POTENTIAL

Equal employment opportunity laws and guidelines mandate that employment decisions be made on the basis of job-relevant criteria (EEOC, 1978). Yet the concept of "potential" presents two major legal challenges for employers: (1) objectively defining the construct, and (2) accurately measuring/evaluating whether candidates possess "potential".

The construct of potential lacks a specific, agreed-upon definition. It has been conceptualized in a variety of ways, including trainability/capacity to learn, adaptability, motivation, determination, drive, grit, hustle, goal-orientation, engagement, and cultural fit (e.g., Banek, 2016; Chamorro-Premuzic, Adler, & Kaiser, 2017; Fernandez-Araoz, 2014; Gausepohl, 2017; Sullivan, 2015; Zenger & Folkman, 2017). The way in which a "potential" is defined will have implications for the nature/type of candidates that are deemed to meet the criteria. For example, when defined as possibility, growth, and ambition, younger individuals may be more likely to be deemed as "having potential" than older workers. If associated with traits like grit, hunger, ambition, and assertiveness, there is a risk of sex-based discrimination, particularly in traditionally male dominated industries. Finally, when potential is associated with cultural fit, there is a risk of gravitating toward individuals who share similar characteristics of existing employees, including demographic factors.

With a lack of a clear definition of the concept of potential, it is difficult to accurately measure and evaluate the construct in terms of concrete, observable, behaviors. Unlike traditional (and highly researched) selection criteria (such as competencies, qualifications, and experience), little evidence exists to demonstrate the reliability and validity of "potential" in predicting job success. It is an inferred characteristic on candidate traits, creating the risk of bias and discrimination. Further, because potential is future-oriented, it rests on assumptions of what the individual "might be able to do" rather than evidence of what the individual has actually accomplished. Instead of relying on standardized methods of evaluations, many hiring managers adopt an intuitive, "I'll know it when I see it", approach to assessing potential. In the absence of specific and concrete measures, hiring managers risk defaulting to their personal beliefs and biases regarding what constitutes potential. The subjective and discretionary nature of "potential" therefore makes it a risky criterion to use in the staffing process. In the following section, we discuss how this approach may be particularly detrimental to older candidates, as the language of the Age Discrimination in Employment Act (ADEA, 1967) offers these candidates with little legal recourse should they be denied employment. We then discuss the broader implications of hiring for potential on claims of disparate impact under Title VII (Title VII, 1964).

POTENTIAL AND THE ADEA: OLDER CANDIDATES LACK PROTECTION

Because potential is a characteristic often associated with youth, employment decisions made on the basis of potential create the obvious risk of age-based discrimination. However, the specific language of the Age Discrimination in Employment Act (ADEA, 1967) ultimately fails to protect older candidates seeking new job opportunities.

Despite a large pool of candidates over the age of 50 who seek new employment opportunities and job interviews, many do not make it past the initial screening process. In fact, many older candidates are unable to find job openings at all. Or, if they already have jobs, they may miss out on promotion opportunities due to age discrimination.

Unlike Title VII, the ADEA does not treat all employment decisions based upon age the same as other protected categories. If the discrimination is based upon race or sex, Title VII would provide relief based upon either a disparate treatment or disparate impact theory. Recent case law suggests the same is not true for age discrimination.

Take the recent case of *Kleber v. Care Fusion* from the U.S. Seventh Circuit Court of Appeals. In that case, a 58-year old attorney applied for a senior counsel position. The job description required three to seven years of experience, but, importantly to his age discrimination claim, no more than seven years of experience. The employer hired a 29-year old applicant who fell within the experience requirements parameters of not exceeding seven years of experience. The plaintiff tried both a disparate treatment and a disport impact theory of age discrimination under the ADEA. (*Kleber, 2019*).

The court in Kleber noted that the ADEA prohibits discrimination on the basis of age if employers treat older workers differently than similarly-situated younger employees. However, unlike Title VII, there is a difference between how the ADEA treats disparate treatment and disparate impact claims. For disparate treatment claims, the ADEA says employers cannot, "fail or refuse to hire or to discharge any individual or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's age." However, a disparate impact theory of discrimination is not the same as a disparate treatment claim. The court noted the language of the ADEA is different and dictates employers cannot, "…limit, segregate, or classify his employees in any way which would deprive or tend to deprive any individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's age." (*Kleber*, 2019).

The difference between the two theories is language is between protection for an "individual" versus and "employee." While a disparate treatment claims protects any "individual" from age discrimination under the ADEA, a disparate impact claim only applies to "employees." (*Kleber*, 2019). It's a subtle, but important distinction. When employers screen out older applicants though targeting job ads to younger workers, for example, they may discriminate against "individuals" but not against "employees" since applicants are not yet employees.

This recent reasoning by the U.S. Seventh Circuit Court of appeals mirrors a trend in another circuit on treating disparate impact and disparate treatment claims differently. An 11th Circuit case from 2016 reached a similar conclusion to the *Kleber* case. In the case of *Villarreal v. R.J. Reynolds Tobacco*, a 49-year old territory manager responded to a job ad where a job recruiter contractor had attempted to screen out older applicants. The recruiter targeted candidates who were two to three years out of college. The employer told the recruiter to "stay away" from applicants who had been in sales for 8-10 years. In this case, the court reached a similar conclusion that the language of the ADEA differs depending upon if the alleged discrimination is a disparate impact or disparate treatment claim and ruled the ADEA does not protect job applicants the same way it protects existing employees. (*Villarreal*, 2016).

DISPARATE IMPACT CLAIMS STILL APPLY

The mandate of Title VII is to "eliminate all aspects of discrimination" (Title VII, 1964). Therefore, despite the fact that the ADEA fails to address future employees, it and Title VII, provide clear pathways for discrimination lawsuits from employees who have been passed over for promotion due to the fact they do not possess the "potential," or other subjective criteria from a hiring manager. As discussed above, subjective employment criteria (i.e. "potential") can be used as a vehicle for discrimination not only for new hires but for promotion as well. Case law has made clear that the disparate impact standard is the more effective way of policing such discrimination. Subjective criteria allow for the use of discretion by the decision maker; an employer making a subjective decision will draw on her perspectives, beliefs, experience, and judgment. With discretionary criteria no identifiable external standard exists that can be measured.

The landmark case of *Griggs v. Duke Power Co.,* 401 U.S. 424 (1971) established the parameters of "adverse impact" or disparate impact with the emphasis on "Business Necessity." The Court wrote that "[g]ood intent or absence of discriminatory intent does not redeem employment procedures…that operate as 'built-in headwinds' for minority groups and are unrelated to measuring job capability" (Griggs, 1971). In this case which involved claims by African Americans that certain testing requirements imposed by Duke Power Company for promotion or hiring in the company, the Court made clear that proof of a racial motive was not required because "Congress directed the thrust of the Act (Title VII) to the *consequences* of employment practices, not simply the motivation" (Griggs, 1971). The Court concluded that an employer can continue to use a criterion which has an adverse impact on members of a protected group if that criterion is sufficiently job related ("business necessity") (Griggs, 1971). The employer has the burden of proving, not merely explaining, that a particular practice is warranted on the basis of business need (Griggs, 1971). The employer cannot defend a showing of adverse impact by claiming the employment process as a whole does not operate in a discriminatory manner (Griggs, 1971).

A Supreme Court case from 1988 highlights how subjective criteria used by an employer for promotion purposes, criteria that might be neutral on its face, in fact, can have a clear disparate impact on the affected employees. Although the case dates from over 30 years ago, its holding resonates with the risks involved in using "potential" as a criterion for promotion purposes. In its decision in *Watson v. Fort Worth Bank & Trust,* 108 S. Ct. 2777 (1988), the Supreme Court handed down a unanimous decision holding that discretionary decision-making by employers challenged as violating Title VII should be scrutinized under the disparate impact standard (Watson, 1988). The plaintiff in the case was a black employee of the bank who had applied for multiple promotions. The bank relied exclusively on its white supervisors to make hiring and promotion decisions with no written criteria. Factors for promotion included: alertness, personal appearance, relations with supervisors and co-workers, physical fitness, dependability, stability, drive, friendliness and courtesy, job knowledge; these were combined with "other factors" (Watson, 1988; Alessandra, 1989). The question that the Court considered was whether or not a facially neutral employment practice had a statistically significant adverse effect on members of a minority group. The Court found that the disparate impact approach can result in some employment practices, adopted without a deliberately discriminatory motive, which may in operation be functionally equivalent to intentional discrimination (Watson, 1988). The Court concluded that "[s]election systems that combine subjective and objective criteria must be considered subjective in nature" (Watson, 1988). The incentive behind the subjective criteria would contravene the purposes of Title VII.

The Court elaborated on how subjective decision-making can facilitate discrimination by providing an outlet for subconscious racial stereotypes and prejudices and that a chief threat posed by subjective employment practices is that they can be a vehicle for unintentional discrimination (Watson, 1988; Alessandra, 1989). The Court goes on to discuss fears of quotas for employers but holds to the burden on the employer to show that any given requirement must have a manifest relationship to the employment in question (Watson, 1988). Of concern to the Court is the potential for unfairness even when the subjective decisionmaker lacks any discriminatory animus, subconscious stereotypes and prejudices, writing that this was "a lingering form of the problem that Title VII was enacted to combat" (Watson, 1988). The Court highlights that subjective employment decisions present "the most elusive, yet potentially most insidious, echo of formerly overt discrimination" and notes that "the threat posed by hidden or subconscious stereotypes and prejudices is compounded by the tendency of people to identify more strongly with others most like them" (Watson, 1988). Decision makers possess a "bias toward the familiar—grounded in a sense of identification rather than aversion—more subtle and harder to detect and prove" (Watson, 1988; Alessandra, 1989). The parallel with the perils of using "potential" as an employment qualification is clear.

The disparate impact analysis focus in both the *Griggs* and the *Watson* cases is on the process of the employment decision and the specific criteria used rather than on the motives behind the decision itself; attention to process simplifies evidentiary problems (Alessandra, 1989). Suggestions for employers that can be gleaned from the *Watson* case start with the Court's mandate that the plaintiff must establish a prima facie case by identifying the culpable practice and demonstrate that it has a statistically significant adverse effect on members of a protected class (Watson, 1988). Therefore, the employer, in turn, should bear the burden of persuasion as to the business necessity of its practice, this burden should be met by proof that procedures were in place to guard against abuse of discretion (Alessandra, 1989). Procedural safeguards can remedy the troubling aspect of subjective decision-making, namely the lack of employer accountability, by giving protected groups a voice in the decision-making process, including an opportunity to obtain review (Alessandra, 1989). Employers should be able to demonstrate the procedural integrity of its decision-making process which would reduce the pressure on the employer to use only objective criteria (Alessandra, 1989).

All the decades that have passed since the Court's decisions in the *Griggs* and *Watson* cases prove the truth that "time will tell" and that technology must be tested against the tenor of the strength of our federal anti-discrimination laws. "Potential" as a promotion or hiring guideline has the prospective possibility of being rife with legal risks for employers.

CONCLUSION

In today's increasingly competitive job market, hiring for potential is often thought to be an appealing strategy to help companies expand their talent pool. However, the way in which potential is defined can actually limit the talent pool. While older workers are particularly at risk for being excluded, targeting candidates on the basis of "potential" creates the risk of disparate impact on other protected groups. Further, it is difficult to prove that this criteria is job-related and consistent with business necessity, which may result in poor decision making if used as the primary hiring criteria. That said, there are ways to reduce the risk of hiring for potential. First, ensure it supports the organizational strategy and culture – i.e., it makes sense for the company. Second, ensure you can effectively define/measure potential in a way that makes sense for the job/company. This should involve taking the time to define the construct in a way that is both specific and measurable, and developing standardized tools (such as structured interviews) with questions that directly tap the characteristics that indicate potential. It is also critical that hiring managers are trained to be hyper-vigilant about avoiding bias and assumptions with respect to what constitutes potential. Third, use potential as a supplement to other criteria – it should not be the sole focus in the hiring process. Fourth, continuously monitor the effectiveness of the process – conduct adverse impact analyses to ensure certain demographics are not being unfairly excluded. Finally, it is important to ensure that a focus on potential is reflected in the entire staffing process – not just hiring. Companies need to have an effective support system in place to ensure "high potential" candidates succeed.

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TAKING THE LEAD TO CREATE BUSINESS ENVIRONMENTS THAT SUPPORT SUSTAINABLE HUMAN RESOURCES

Savannah Vezeau, Vikkie McCarthy and David Grimmett
Austin Peay State University

ABSTRACT

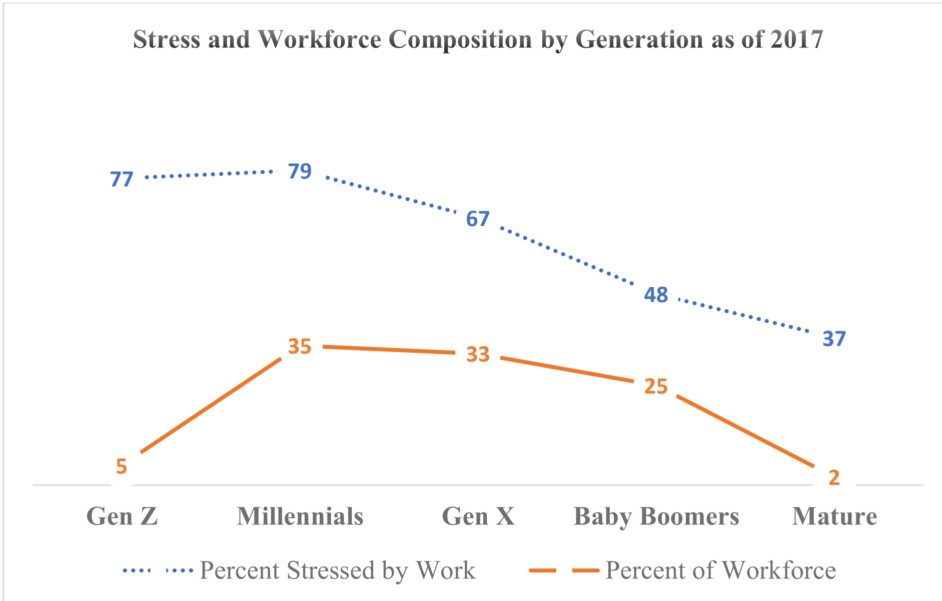
Stress in the workplace can cost organizations money and threaten the sustainability of human capital. Reducing workplace stress can save organizations money by reducing turnover and absenteeism. Green spaces are incorporated in many workplaces as simple means for improving focus and overall productivity. Meditation has shown similar effects, as well as general benefits to an individual's mental and physical health. This research discusses the role of leadership in creating business environments that support sustainability of human resources and offers a viable solution for reducing workplace stress. This research article outlines a process for determining the costs of a workplace biophilic meditation space and it provides a simple formula for calculating return on investment into a biophilic meditation space within the work place. The purpose of this paper is to propose a formula which can be used by businesses to determine the return on investment into creating biophilic meditation spaces within the workplace. The findings of this research indicate that combining benefits of biophilia and meditation by creating biophilic meditation spaces within the workplace can offset the costs of workplace stress. The benefits of this research are twofold. First, this research continues the conversations related to reducing the costs of workplace stress to organizations. Second, it highlights the need for organizations to engage in sustainable human resource practices in order to care for internal stakeholders.

Keywords: biophilic meditation, corporate social responsibility, employee productivity, stress reduction, management, sustainable human resource management

WORKPLACE STRESS

Socially responsible organizations engage in sustainable workplace practices which lead to the retention of human capital (Barrena-Martinez et. al., 2019). Such practices include sustainable human resource development (Forte, 2013). One environmental factor that threatens sustainable human resource development is workplace stress. Workplace stress is a costly problem that affects many businesses and employees. According to the American Psychological Association (2018), 61% of Americans feel stressed about work. Furthermore, 77% of Gen Z and 79% of Millennial workers' stress over their jobs compared to previous generations: 67% of Gen X, 48% of Baby Boomers, and only 37% of workers age 63 and older (American Psychological Association, 2008; 2018). The trend implies workplace stress is an issue that employers will increasingly face as Millennials and Gen Z begin to dominate the workforce. Figure I, below shows the relationship between these generations and their presence in the workplace.

Figure I: Stress and Workforce Composition of the United States by Generation



The creation of biophilic meditation spaces in the workplace is one sustainability trend aimed at reducing workplace stress (Greene, 2018). Several corporations have been on board and leading this trend. The "mindfulness" program at General Mills was founded in 2005 to help employees gain clarity, promoting creativity and connectedness (Gelles, 2012). Executives in Target, Google, Apple, and Goldman Sachs are also known to have initiated meditation advocacy within their corporations (Gelles, 2012). Businesses like these believe biophilia and meditation reduce the costs of workplace stress and ultimately increase employee commitment and engagement. These companies are globally growth-oriented and provide excellent examples of organizations addressing corporate social responsibility in the form of employee health and satisfaction.

The latest published survey by the American Psychological Association (2018) further determined that people who live in cities had a higher level of self-reported stress than those in both suburban and rural communities. This finding maintains the idea that interaction with nature may have stress-reduction effects. A survey of British workers in urban-fringe sites found high levels of stress serve as predictors of the use of biophilic spaces (Colley et. al., 2017). Higher self-ratings determined the employees' stress levels, and those who were more stressed utilized workplace greenspaces more often than low-stress employees. Stress was calculated using the Short Version Warwick-Edinburgh Mental Wellbeing Scale which asks participants to rank a series of statements to address well-being in terms of general happiness as well as relationship functioning.

The purpose of this paper is to propose a formula which can be used by businesses to determine the return on investment into creating biophilic meditation spaces within the workplace. The paper is structured as follows: First, a review of the literature will synthesize the research related to workplace stress, biophilia, and meditation. Second, a case design will be used to propose a formula for quantifying the return for businesses investing in biophilic mediation spaces.

Finally, a set of recommendations for further research in this area will be proposed in order to continue the conversation related to reducing workplace stress through biophilia and mediation.

Reducing Workplace Stress

Biophilic meditation maximizes the synergistic benefits of having clarity in both the mind and body. Biophilia is an increasingly popular hypothesis that inadvertently offers an explanation to the mental health deterioration of today's workforce. Man-made buildings and offices are the primary setting for the modern worker, and this prevents people from indulging in their innate desire to be around natural processes. Additionally, over-stimulation of the mind causes many workers to complete daily tasks in an almost robotic manner (Lampe & Engleman-Lampe, 2012). Mindfulness achieved through meditation promotes reality-oriented thoughts and intuitive innovation. Biophilic meditation addresses the needs of restoration and natural inclusiveness in a single space, effectively reducing stress from biophilic deprivation and over-exertion of the mind. The benefits of the proposed super haven are supported in literature, and the space can easily be introduced into existing businesses to obtain these benefits.

Stress is defined as the response of a person when pushed beyond perceived limits to meet his or her physical, mental, or emotional demands (Brock & Buckley, 2012). Stress is a beneficial motivator in appropriate amounts—it heightens alertness for challenges, encourages competition, and keeps employees on task. However, too much stress can limit employee efficiency, amplify mental illnesses, and it could even cause or worsen physical ailments. This kind of negative stress is at the focus of many businesses because of its detrimental effects on employee functioning and behaviors, (Bruggen, 2015). Employees struggling to cope with stress are more likely to participate in turnover, absenteeism, and negative coping mechanisms which collectively contribute to a significant amount of lost profit in the United States.

Employee Turnover

The term "employee turnover" relates to the number of employees who leave the organization. Businesses strive to limit turnover to minimize the resources allocated for recruiting, hiring, and training of new workers. Dysfunctional voluntary turnover is the focus of businesses because this means high-performing employees are quitting their jobs, leaving lower performance individuals to pick up the slack of vacated positions (Wallace & Gaylor, 2012). This could increase employee stress by adding workloads to remaining individuals. Furthermore, these instances encourage urgency of hiring managers, which could lead to more of the lower performing or less skilled hires. This ultimately diminishes the productivity of a business by increasing costs and distractions while reducing manpower and employee satisfaction. Employees will likely leave an organization when possible, if that organization overloads workers without assistance for stress reduction. Often, higher workloads or higher levels of difficulty in work will increase individual stress and lower the quality of work output (Bruggen, 2015). Because not all businesses can afford to hire new individuals as workloads increase, it is imperative for employers to reduce stress in other ways, minimizing the negative effects that decrease overall productivity.

Reduced Profitability

In addition to turnover, stressed employees are more likely to contribute to absenteeism. In the United States, absenteeism accounts for 550 million lost work days annually, with an estimated 54% of those absences related to stress (Brock & Buckley, 2012). When employees miss days, the work they do not complete is either given to peers or added to another day's workload. Either situation adds to the stress of employees, who likely continue the cycle of absenteeism to escape workplace stress. Additionally, stressed adults are more likely to utilize unhealthy coping mechanisms such as isolation, alcohol consumption, smoking, or over-eating. These bad habits can lead to increased visits to healthcare providers or cause diseases, which increases expenses for employers who offer healthcare benefits. Because most medical offices operate on the same schedule of other businesses, healthcare visits may also contribute to absenteeism or tardiness. Overall, stress-related ailments cost U.S. industries an estimated $68 billion annually in healthcare expenses, reducing profit by 10% (American Psychological Association, 2010; Azagba & Sharaf, 2011). The cost of stress is evident in American business, and it is in the best interest of corporations to facilitate the use of healthy coping mechanisms to limit employees' detrimental stress.

Manipulating Biophilia

Biophilia has been the topic of scientific research since the 1970's and focuses on understanding the human experience in relation to other living organisms. Biophilia has been defined as human desire to interact or be closely associated with environmental landscapes, sounds, and animals in nature, (Clowney, 2013). Among the first to use the term was the German-American sociologist and philosopher, Erich Fromm, who had a fascination with comprehending human nature and our driving forces. He believed humans felt "the passionate love of life and all that is alive," and valued the human relationship with the world as an important motivational factor in our decision-making (Clowney, 2013; Kellert). Many scientists have conducted studies reinforcing the biophilia hypothesis since Fromm, but Stephen Kellert's evolutionary explanation gives the phenomenon a logical and scientific context. For more than 99 percent of our species history, we evolved in adaptive response to mainly natural forces and stimuli (Kellert, 2016). Most of what we view as normal today from large-scale agriculture to mass production to modern medicine to electronic media only emerged during the past 5,000 years and less. Our senses, our emotions, and even our intellect developed in interactive relation to mainly natural not human-created or artificial forces (Kellert, 2016). According to the tenants of biophilia, it is evolutionarily unsuitable for humans to experience man-made settings more than the natural world. Developed countries' citizens spend nearly 90% of their time indoors, and the buildings that surround most American workers today are not biophilically stimulating (Kellert, 2016). This lack of natural interaction may be a source of disconnect and mental instability.

With the hypothesis of biophilia in mind, it is logical to expect problems in urban corporate workers from a lack of interaction with natural processes. Urban settings offer the least biophilic indulgence, and 80% of people in the industrialized world live in cities (Kellert, 2016). Additionally, the modernization of suburban and rural communities may amplify issues associated with suppressing biophilia. The scientists behind this hypothesis do not specify whether biophilic benefits are maximized more from plants versus animals, but plants are easier and more humane than animals to incorporate into industrial spaces. Therefore, businesses may benefit from plants and greenspaces as preventative and coping mechanisms in the reduction of stress and other hindrances to mental and physical health.

Benefits of Biophilia

With the body of research on biophilia exponentially increasing since its introduction in the 1970's, its benefits are becoming more apparent and relevant to challenges in modern business. Biophilia creates a sense of ease in individuals, which reduces stress and increases empathy among peers, leaders, and family members. This finding suggests the benefits of biophilia may be observed in numerous settings including the home and workplace. In addition to the reduction of stress, contact with nature has also been shown to improve learning, morale, work performance, and individual work output—these are obvious advantages for a business organization (Kellert, 2016). Other surprising health benefits include increased immunity, lower blood pressure, and pain relief (Kellert, 2016). Any organization that offers healthcare assistance would benefit from healthier employees, thus biophilic meditation spaces at work could potentially improve profitability by reducing more than just stress-related medical expenses. This could further reduce turnover and absenteeism by improving mental and physical well-being of employees in both work performance and personal life.

Biophilic Design

Most research on biophilic design addresses the broader implications and describes biophilic urbanism. This focuses on the addition of greenspaces in cities without specifically dictating natural features in office buildings. Its advocates strive to have more parks and gardens installed within the urban cityscape (Littke, 2016). These spaces would serve communities by promoting outdoor activity, especially in children. This is an invaluable resource given the instances of obesity are plaguing many first world countries including the United States. By addressing the problem in children, future generations in the workforce may show improved physical health. While less effective over the long-term, adults also show improved health when offered greenspaces to partake in outdoor activities (Littke, 2016). These ideas are often met with skepticism, but the increasing number of benefits of biophilia observed in research today help support the argument for radical change in city planning and structure. This process could be facilitated with corporate recognition and integration in the form of green and biophilic spaces in the workplace.

Biophilic design in offices is another application of the principles of biophilia. Most companies incorporate biophilia into office design by offering window views and housing indoor plants. More extreme interpretations include indoor or rooftop gardens, sky-ceilings, and water features (Jones, 2015). The most successful, global businesses today are focusing more on flexible leadership and creativity from employees (Baron et. al., 2018). These organizations are realizing the office setting must change in accordance with ideological changes. As indicated previously, stress is a major factor limiting the success of individuals and the growth of businesses. Global organizations are incorporating biophilic design into offices and buildings as ways to alleviate stress in the workplace and facilitate healthy social relationships. Biophilic design serves as a form of corporate social responsibility because it promotes the general well-being of its workforce and environmental sustainability.

Meditation

Meditation is an ancient practice that involves relaxation of the body to inwardly understand the relationship of an individual's mind to the rest of the world (Lauche et. al., 2014). Many traditional styles of meditation have specific rules and objectives aligning with the Hindu and Buddhist religions. The traditional Buddhist style of Zazen meditation focuses on breathing and promoting connectedness to one's surroundings. This form is ideal in the workplace, as it can be practiced without much training or skill. Meditation can be practiced anywhere, but it often is supplemented with incense, silence, and comfortable seated or reclined positions. This promotes a state of mindfulness, which is a non-judgmental state of awareness of one's surroundings (Jacob et. al., 2009). Mindfulness encourages better understanding of others as well as one's self in a team setting, which is an increasingly popular method for problem solving in businesses.

Today, the term meditation often refers to generalized breathing and relaxation exercises to promote mindful thinking. Prestigious American schools like Harvard, New York University, and University of California at Berkeley have introduced mindfulness programs for their graduate students (Hyland, et. al., 2015). Most mindfulness training is utilized in high-stress professions including those in medicine, education, STEM, military, and finance (Allen et al., 2015). The shift in meditation from a religious practice to one of secular nature in Western cultures indicates the benefits are more than spiritual. As early as 1982, scientists found that the state of relaxation from meditation can decrease salivary bacteria, thus limiting tooth decay (Morse et al., 1982). Furthermore, some modern medical professionals use meditation to help with chronic pain and mental diseases in patients (Allen et al., 2015).

The benefits of meditation have been increasingly presented in business literature and research in recent years, with only 52 published articles about mindfulness published in 2003 and 549 in 2013 (Hyland et. al., 2015). This indicates a growing interest in the field, and researchers warn this trend will continue despite often being labeled a fad. The term workplace spirituality specifically relates the outcomes of mindfulness to the work environment. It is described as an organizational framework to enhance the employee community and to promote happiness and satisfaction (Daniel, 2015). Mindfulness promotes intentional awareness of being, unity, and responsiveness; this contrasts to the "conditioned" mindset of most people which is an "auto-pilot" state of doing with more emotional reactivity than equanimity (Lampe & Engleman-Lampe, 2012). Studies of workplace spirituality as an emerging business value provide evidence about the benefits that improved employee moods can facilitate in the workplace (Jacob et. al., 2009). When employees feel more mental clarity, they are more likely to innovate and engage in healthy communication with peers. The incorporation of workplace meditation is perceived as beneficial among employees, given any additional training takes minimal time from work duties (Hyland et. al., 2015). Though mindfulness is achieved gradually, businesses with online and abbreviated meditation training programs have noted individual employee benefits such as improved sleep and reduced stress levels (Klatt et. al., 2009).

The objective of this research is to determine a method for calculating the return on investment into workplace biophilic meditation spaces. To this end, we present a case designing a biophilic meditation room and the cost of building such a room. This case is scalable but aimed at smaller organizations for the purpose of an example from which to calculate costs for determining a return. The prices for materials are presented in USD currency but can be applied to any currency in any country. The return on investment will vary according to locality.

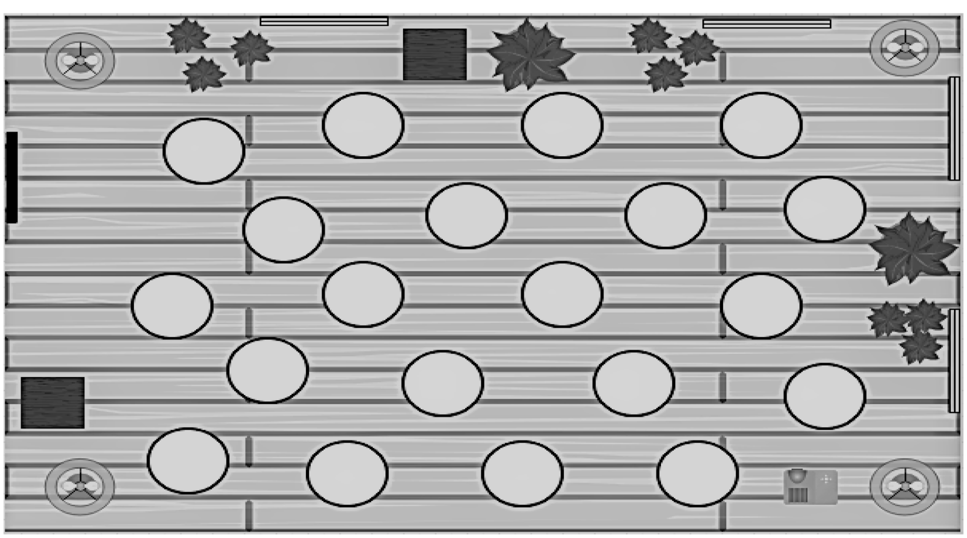
A Biophilic Meditation Room

Biophilic meditation is the combination of relaxation techniques of the body and of the mind (Cl. Meditation relaxes the body with breathing and promotes self-contemplation to give the mind clarity. Biophilic indulgence gives the mind more connectedness with natural rhythms of life and has shown to improve human physiology. The combination of the two concepts provides a healthy coping technique for stressed workers without much expense from employers. Businesses must consider the space available, specific items and resources required, and methods to ensure the room will be used by employees. These factors are discussed below, including some resource alternatives and additional considerations associated with creating the synergistic haven.

Minimal space is required for a functional biophilic meditation room. It should have a capacity of 15 to 20 people depending on the number of employees who will have access to the room. For example, a Buddhist meditation room was added to the United States Air Force Academy Chapel in 2007 with only 300 square feet of meditation space and a capacity of 20 people for its typical 4,500 enrollments (Emery, 2007). In businesses with fewer than 2,000 employees, a space equipped for 20 people or 1% of its employment would suffice in serving the entire work force. However, larger corporations may require more or larger spaces proportional to its employment. In a corporate campus, each building should have a room for restorative biophilic meditation, or the corporation should have a larger room in a central location. A designated space for biophilic meditation is ideal because multifunctional spaces may diminish the quality of relaxation.

A biophilic meditation room would require specific components to give employees the ultimate stress relief haven. A conceptual floorplan of the ideal biophilic meditation room is portrayed in *Figure 1*. Natural light is a valuable resource to suffice biophilia, so a room with windows is preferred. However, these windows should have wooden shades to be utilized on dark or gloomy days. On those occasions, shaded lamps with ambient lighting should supplement the light in the room. Greens and tan colors on the walls enhance the natural essence of a room. Images of plants could be displayed, or succulent plants may be utilized for easy maintenance. If more maintenance is realistic within the budget, small trees and plants can be used, but these would require sunlight throughout the year. Rock and wooden elements also add biophilic value to a space. An estimated cost of supplies for a biophilic meditation room in the US for 20 people is included in *Table 1*. The supplies included are the basics necessary to give a 200-300 square foot room the relaxing benefits of biophilic meditation, and the estimation assumes an existing room of that size is available for use. A space of this size should serve all employees, given usage will overlap and individuals could visit as needed. Prices listed are based on an online search of advertised prices by the supplier as of February 2019. These prices are presented in USD as is the total cost of this workspace. A business in the US would spend less than 1500 USD on the creation of biophilic meditation space to effectively reduce the stress of employees and improve individual productivity.

FIGURE II: Conceptual Floorplan of a Biophilic Meditation Room Generated with Gliffy Diagram



Note some materials included in the estimation can be replaced with existing business technology. For instance, if the office has a sound system and computer in the room, videos of natural noises could be accessed via YouTube or an App to replace the sound machine. Additionally, approved local collections could supplement expenses on rock or plant features. Art pieces depicting natural scenes can be found from various suppliers at various prices, but no more than 100 USD should be necessary to acquire images of nature. The suggested expenses listed in *Table 1* do not account for additional maintenance, which should be minimal. Succulents are ideal living plants to incorporate due to their minimal water requirements, but ample sunlight would be necessary. Any non-succulent plants would require more water as a resource to sustain life. Water features would be beneficial additions to the space, but those were not included because they require more maintenance and can be substituted by running water noises of a sound machine. If funding and maintenance is available, small water features are a recommended option to enhance the quality of the biophilic meditation room.

TABLE I: Cost of Biophilic Meditation Room

Estimated Cost of Biophilic Meditation Room Supplies and Equipment as of February, 2019			
Product	**Supplier**	**Quantity**	**Total Price (USD)**
Sound machine	Amazon	1	$25
Bag of river rocks	Walmart	2 @ $12.50.	$25
Gallon of interior paint	Walmart	2	$70
Accent side table	IKEA	2	$80
Shaded floor lamp	Walmart	4	$90
Set of 20 succulents	Plants for Pets	2	$95
Artificial potted tree	IKEA	2	$100
Art or images of nature	Various	5	$100
Wooden woven shades	Justblinds.com	4	$140
Bamboo rug	Rugstudio.com	1	$370

Meditation cushions	Yoga Direct	20	$400
		Total Estimated Cost	**$1,495**

Regardless of specific demographics, high-stress employees look to utilize nature as a remedy for stress (Colley et. al, (2017). Biophilic meditation spaces can serve as a haven for stressed employees. This is especially important because younger generations who are increasingly represented in the workforce are more likely to suffer from and admit to workplace stress.

Quantifying the Benefits

The equation below gives a hypothesized value for the benefit of a biophilic meditation room for one year based on the estimated costs of creating the space in a US based business with ≥2000 employees. For a business to analyze the benefit it would gain from this room, monetary values of the business's yearly profit and number of employees must be input.

Formula 1: Return on Investment for Biophilic Meditation Space

$$BM = \left(-1500\,\frac{N}{2000}\right) + 1.04(P)^{*}$$

$^{*}BM\!: Benefit\ of\ a\ biophilic\ meditation\ space,$
$N\!: Number\ of\ individuals\ employeed,\ P\!: Yearly\ profit$

Businesses can extrapolate this benefit by simply adding 4% of their yearly profit for that number of years. The 1.04(P) value was estimated given stress-related ailments reduce 10% profit annually in the United States. A biophilic meditation space in the workplace would not likely address all the stressors workers encounter because outside factors like family, politics, and money are also major sources of stress (American Psychological Association, 2018). Therefore, the equation above gives a conservative estimate of 4% increased profit, approximating 40% of the stress-related profit lost could be restored by offering effective stress relief in the workspace. This equation does not translate to a 4% increase in profit each year, but it means that the benefit of the space should sustain a 4% higher profit each year compared to the profit from the year before any biophilic restorative space was offered. Note this equation does not account for expected yearly growth, which should be considered by businesses individually. The increased clarity of employees should improve workplace relationships, promote innovation, and attract more motivated employees—this opens opportunity for more profit gain each year from general growth and increased productivity in addition to the profit gained from employee stress reduction.

SUMMARY AND FUTURE RESEARCH

In today's fast-paced culture, many workers face problems with mental health and seek coping mechanisms to reduce stress. Businesses can incorporate biophilic meditation spaces in offices to improve employee productivity and address corporate social responsibility. A biophilic meditation space is a low-cost, effective tool that employers can offer to reduce workplace stress. This space addresses the increasing need of employees to have restorative spaces within the workplace. Given that workplace stress is an increasingly prominent factor plaguing Americans, the addition of this super haven demonstrates corporate investment in the long-term health of its workforce. Furthermore, the tenants of biophilia promote ecological sustainability, which addresses a social issue that holds immense value to many groups, including potential customers.

Issues concerning this synergistic haven include a lack of monetary resources and a lack of buy-in from employees. While the evidence is clear on the benefits of biophilic meditation, many deem its virtues faddish. This could affect the willingness of management to invest in the space, but that factor could be minimized by further analysis of research and review of data within this paper. The other issue of employee buy-in should be mitigated by management. This space may need to be "sold" to employees who have negative associations with meditation or environmental conservation. As mentioned before, younger generations are more likely to admit they are stressed about work, so a company's unique demographics may help determine how much selling is necessary. The benefits of this space could be maximized with mindfulness training, which was mentioned in this paper. It was not a focus of this research, but training could improve the outcomes of the room and potentially increase the percentage of profit regained by stress reduction.

Hypothetically, stress reduction in the workplace would stimulate further benefits outside the office and ultimately decrease associated healthcare expenses and limit liability for stress-related compensation lawsuits. Furthermore, businesses that value employees' well-being tend to attract a better and highly motivated workforce and loyal customers (Forte, 2013). A restorative space has the potential to increase profits more than the 10% lost to stress-relates healthcare expenses—increased motivation in employees opens the opportunity for growth through innovation and customer loyalty. The term civic environmentalism describes the process unifying leaders and common citizens, promoting public empowerment to solve ecological problems (Young, 2016). The idea behind this movement is that all people rely on the environment, so all should work to improve it. Inclusion of a biophilic meditation room enhances interactions among workers and nature, which promotes a greater appreciation for the environment. This phenomenon demonstrates a higher purpose behind the biophilia hypothesis, proposing it could also serve as a tool to promote ecological sustainability in businesses and individuals. A biophilic meditation room then serves as a demonstration of corporate social responsibility by encouraging productivity, mental health, and environmental sustainability in employees. The improvements to employee health and corporate social responsibility outweigh estimated costs for the addition of a biophilic meditation space. Furthermore, corporate investment in employee well-being promotes more favorable perceptions of management. The benefits of this super haven are evident in scientific literature, but further research of an actual biophilic meditation room is needed to provide more substantial insight. In practice, incorporating the room may take more than one fiscal year to produce results and could vary across industries.

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THE IMPACT OF PERCEIVED HARD WORK ON CONSUMER TIPPING BEHAVIOR

Jacob I. Fait
Lisa M. Andrus
Tusculum University

ABSTRACT

This study presents the results of an experimental investigation on the effects of perceived hard work on tipping behavior. The study is timely as it comes at a time when many restaurants are considering conforming with the no-tipping model and compensating servers at a rate in excess of minimum wage. The study intends to answer the question: "Are consumers willing to tip more if they perceive their wait staff to be hard working?" If the answer to this question is yes, implications for researchers and practitioners are endless. Historical tipping correlations, findings, implications and areas for further research are discussed.

INTRODUCTION

Tipping has become a custom and a part of everyday life for most individuals, in the United States. They either have a standard amount that they are comfortable tipping a server or have a graduated scale with which they reward greater perceived service. Practitioners and academics have long examined this phenomenon for better understanding. Are there correlations which can be drawn from certain actions of behaviors of a server? Does the venue itself predicate the generosity of a customer? Can practitioners in the hospitality industry modify their daily interactions and behaviors with customers to facilitate consumers opening up their wallets just a little bit further?

Tipping in the United States provides income for greater than 1.4 million food servers and over 30 other occupations which receive tips on a consistent basis (Seiter, 2007). Just a decade ago it was estimated that the food service industry alone accounted for over $42 billion dollars in tipping annually (Azar, 2010).

There is differing opinions on the origins of the term tip. Many believe that is derives its roots from the early 17th century and is nothing more than an acronym standing for 'To Insure Promptness'. This has been debated by many simply due to the improper usage of the work insure. The second school of thought is that it derives its name from the German verb 'Tippin' which means to tap or poke. Regardless of the true origin, the authors have operationalized the term for purposes of this work as: 'customary monetary compensation paid directly from customer to server in exchange for service'.

The study itself is based upon exploring the hypothesis that there is a positive correlation between perceived hard work in a server and the amount of gratuity a customer leaves. The greater the perceived work effort, the greater the tip received.

For example, if Table A receives superb service from their waiter/waitress. The entire table is greeted and sat in a timely manner, drinks are provided within just a few minutes and the group is entertained with witty humor, service and an overall wonderful experience. During the dining experience and while the table was completely taken care of and meals were being prepared the server was witnessed straightening out the menus, wiping down tables, folding linens, wrapping silverware and helping his/her associates deliver meals to another table. Overall the table felt as though they received good service and a wonderful experience.

Table B received the same prompt service as Table A. The entire table is greeted and sat in a timely manner, drinks are provided within just a few minutes and the group is entertained with witty humor, service and an overall wonderful experience. During the dining experience and while the table was completely taken care of and meals were being prepared the server was witnessed sitting in an empty booth on his/her cellular phone. This behavior did not negatively impact the level of service or frequency of his/her visits to the table. Overall the table felt as though they received good service and a wonderful experience.

The hypothesis presented suggests that the server for Table A would receive a greater level of tips based upon his/her hard work that did not directly affect the service provided to the party.

LITERATURE REVIEW

The body of literature surrounding tipping theory is rather small and definitely not abundant in any one area. Current scholarly pieces seem to examine a plethora of different areas however do not span multiple occupations, regions, customer demographics or even venues. Interesting areas of focus include: server appearance, sex of server, dining party size, group's total expenditure, greeting customers by name, touching customers, receipt personalization and the effect of complimenting customers.

Michael Lynn from Cornell University found that alcohol does in fact have an influence on tipping behavior. He explains that alcohol creates two effects on behavior acting as both a mood enhancer and to cognitively impair the customer (1988). Interestingly he concluded that the fact that a table ordered alcoholic drinks had a greater correlation to tipping than the actual number of drinks. This phenomenon could be explained by not knowing if the paying/tipping individual at the table was the one imbibing the drinks or not.

Ofer Azer proposed that there are two potential reasons for which customers' tip, strategic motivations to earn good future service and social/psychological motivations (2010). His 2010 study concluded that there was no correlation indicating that there were strategic motivations for future service so that the only possible motivations were social and psychological in nature. This means that a customer would have a feeling of guilt for going against the cultural norm of tipping or experience an internal high from impressing others with their generosity.

An additional area of study in tipping research is the effect of receipt personalization on tipping behavior. Brian R. Kinard and Jerry L Kinard appear to be the leading experts on this concept with the most recent documented scholarly work in 2013. Receipt personalization is the act of a server writing on the receipt a message to the customer. Common personalization includes the popular smiley face, 'Thank You', or even leaving the customer with the server's name. While prior studies on receipt personalization indicated a positive correlation between personalization and amount of gratuity Kinard and Kinard (2013) point out that these studies neglected to examine the actual quality of service provided by the server. In their 2013 study they presented a case that while personalization does have a positive correlation in tipping amount in good service scenarios, this is not the case in poor service scenarios. They indicate that there is an inverse correlation between personalization and tip amount in poor service scenarios. This means that receipt personalization actually decreases tips a server receives when the service is poor. The concern is understanding the differences as to what constitutes good from poor service. Lynn and McCall (2000) conducted a meta-analysis that found a small, positive, but reliable and generalizable relationship between service evaluations and tip sizes supporting the "reward for service" philosophy that many servers and patrons understand, better service mean higher tips. The small finding led Lynn and McCall (2000) to more closely analyze the service-tipping relationship. They also found that customer mood, patronage frequency and server favoritism were explanations for the correlation between tip size and service evaluations (Lynnn and McCall, 2000).

Kerr and Domazlicky (2009) found demographics, such as age, race, and income level had positive and significant effects on the tip amount received by delivery drivers. They found that the older customers tipped less than younger customers. African-Americans tipped lower than whites, and "for every $1,000 increase in the customer's income, the tip percentage increased by 0.064 percentage points" (Kerr & Domazlicky, 2009). However, gender was not a significant factor in a customers' tipping behavior.

Definition of Terms

Server- the employee who is responsible for ensuring patrons have an enjoyable experience by providing quality customer service, delivery of food and beverages, and other duties defined by the establishment.

Tips/Gratuity - customary monetary compensation paid directly from customer to server in exchange for service

Service – the act of waiting on a customer whether in a food service, hospitality or bar scenario

Venue – the physical location of a restaurant, hospitality

Perceived – One's recollection of an occurrence

Hard Work – work behavior of a server who is going beyond the normal set of expectations

METHODOLOGY

Prior to gathering data, the researchers presented two proposed scenarios, mentioned in the introduction, to a panel of hospitality industry professionals to discuss operationalization of terms and study design. The panel of experts suggested the use of narrative descriptions of the scenarios with no pictures or videos that might create biases. The population of study participants would include anyone over the age of 18 that had experience in a restaurant where gratuity would be expected as part of the dining experience. It was also suggested that two different populations of study participants should answer the different scenarios.

The researchers used Amazon Mechanical Turk to ask one hundred study participants per scenario (Table A and Table B), compensating the participants at the rate of $.25 per respondent. All survey responses were collected in the same day.

Study participants in scenario A (Table A) were given the following question: You receive superb service from your server. The entire table is greeted and sat in a timely manner, drinks are provided within just a few minutes and your group is entertained with witty humor, service and an overall wonderful experience. During the dining experience and while the table was completely taken care of and meals were being prepared the server could be seen straightening out the menus, wiping down tables, folding linens, wrapping silverware and helping his/her associates deliver meals to another table. Overall the table felt as though they received good service and a wonderful experience. As the person picking up the bill, how much would you likely tip on a $100 bill?

Study participants in scenario B (Table B) were given the following questions: You receive superb service from your server. The entire table is greeted and sat in a timely manner, drinks are provided within just a few minutes and your group is entertained with witty humor, service and an overall wonderful experience. During the dining experience and while the table was completely taken care of and meals were being prepared the server could be seen sitting in an empty booth on his/her cellular phone. This behavior did not negatively impact the level of service or frequency of his/her visits to the table. Overall the table felt as though they received good service and a wonderful experience. As the person picking up the bill, how much would you tip on a $100 bill?

FINDINGS

The study found that the same number of respondents in both scenarios A and B responded that they would tip at the 10% gratuity level, implying that the amount of perceived work might not be a determining factor for those respondents. At the 15% and 20% gratuity level, the responses were higher from the scenario B group compared to scenario group A. The 20% gratuity level received double the responses from scenario group B implying that possibly perceived hard work of the server is not a factor and those respondents will tip 20% with good or poor service. At the 25% and 30% gratuity levels the responses were higher from the scenario A group with the 30% level over double the responses from scenario B group. This result could indicate that perceived hard work is important to the customer and is reflected in the gratuity that they leave the server.

To understand why the scenario B group consistently tipped the same levels of 10%, 15%, and 20% or higher, and almost equally the same at the 25% level as the scenario A group, the researchers analyzed the demographics of the two groups. The largest age group was 25-34 years of age in both scenario groups with more male respondents than females. The majority of respondents overall earned a bachelor's or master's degree, and tend to dine out a few times per week. Income levels for the groups ranged from $30,000-$49,999 with the majority also having hospitality industry experience.

CONCLUSION

Scenario A group responded to the situation where the server was working hard outside the necessary service of their table, giving a perception of hard work. This group has the greater hospitality industry experience, tips 25% and higher, is 25-34 years of age with bachelor's and/or master's degree level education, eats out a few times per week and earns $15,000- $49,999 per year. Scenario B group responded to the situation where the server was perceived not to be working as hard outside the necessary service of the table. This group of respondents does not have as much industry experience as scenario group A, tips at the 20% gratuity level on average, is the same age range as scenario A group 25-34 years of age, has earned a bachelor's degree, they eat out weekly, and earn an income between $38,000-$74,999 per year.

As with any study there are inherent assumptions and limitations present. These need to be recognized by researchers, practitioners and anyone attempting to utilize this study in research or practice. The first inherent assumption is that the surveyed population is representative of the general public in the United States. Simply due to the composition of the sample populations it can reasonably be determined that it is not due to the homogeneity of respondents. For this reason, any generalization of the findings should be generalized to a demographic that is representative of the sample.

The second assumption made is that respondents are perceptive enough to see the differing work effort in the two scenarios. Simply due to differing levels of observation and perception this may or may not be picked up upon by a customer.

Lastly, it is important to consider that there may be an alternative motivation distracting from the two scenarios. For example, an individual could habitually tip the same percentage regardless of service, could be attracted to a server and therefore tip a greater amount or even tip greater due to feeling good or due to social status motivations. For this reason, a larger sample group could help negate this phenomenon.

FUTURE RESEARCH

As tipping is a relatively new field of study and the body of scholarly literature is extremely narrow there is a plethora of areas to study for future research efforts. One such area is examining tipping behaviors regionally. This would involve spreading the sample size across a number of regions, perhaps by state and exploring the possibility of differences in tipping behavior based upon geographic region.

Next, we propose the study of tipping behavior by age. Based upon the literature review it has been determined that there currently is a point-in-time nuance of older individuals tipping at lower percentages than younger customers. Is this truly an age nuance? Or is this perhaps more of a generational trend? Findings in this arena could influence business owners, practitioners and even servers' decision to enter the field.

Lastly, we would like to propose an expanded sample population for greater generalizability across the United States. As aforementioned, our sample size has inherent limitations based upon the demographics of individuals completing Amazon Mechanical Terks. An expanded sample size and even a different mechanism for collection could enhance and strengthen this studies ability to be generalized.

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DISCRIMINATION AND THE ECONOMY IN THE 20th CENTURY

Reza Fadaei
National University

ABSTRACT

The driving force of the economy once was man. The driving force has changed throughout time and has transitioned to women. Women could be described as a superpower when comparing how they affect the directions of a trending economy. More than six billion people are living on our planet. Every single person is a unique combination of genes, which are both the cause and the consequence of our differences. This society has been formed on the principles of diversity and yet succeeded to become the world's major economic and political power, long before the complexity of our differences emerged as an issue. Over the year's women have been viewed by society in many ways regarding their function in society and what it should truly be. In the years 1890 to 1920, known as the progressive Era, nearly everyone believed that a women's first duty was to bear and raise children and maintain the household duties, and that women were better suited for these than any other function. Nearly everyone agreed that it was sometime necessary and proper for some women to work, and those jobs outside of the home were suitable only for some women. There was wide disagreement about the job a woman might pursue. At one extreme, Americans believed that no girl or woman should work unless compelled to by the absence of the male breadwinner, and that very few jobs were appropriate for women. At the other extreme, a very small minority of Americans believed that every woman should be free to follow the career of her choice. Therefore, this paper examines whether there was any discrimination, crime and gap between men and women or not and if so why?

INTRODUCTION

The tremendous and highly complex industrial development which went on with ever-accelerating rapidity during the latter half of the nineteenth century brought us face-to-face at the beginning of the twentieth century with very serious social problems. The old laws and customs were no longer enough to deal with these developments. Generally, the infiltration of the social science into the law and the administration of criminal justice occurred during the first three decades of the twentieth century. Law journals, journals of crime and delinquency, various crime surveys, and investigative studies of the administrative branches of the law began to adopt the languages and models of the disciplines of economics, sociology, psychology, and anthropology. Some of the concerns of sociologists, psychologists, political scientists, and other social scientists who study criminal behavior can be incorporated within the economic model. This is because economists argue that the gains and costs of criminal behavior include psychic elements (1).

Diversity in the workplace has become a popular buzzword in corporate America. But what does it really mean? That is hard to say given the fact that different firms interpret the notion of diversity differently (Wilson, p. 21) (2). Diversity in the workplace comes in different forms such as race, gender, religion, age, sexual preference, social, economic or ethnic background, education, experience, etc. Our traditional perception of diversity in the workplace has been focused on minorities and women. Some companies are focusing on the interests of women and have created advisory teams to deal with the issue (Henderson, p. 37) (3). But this approach has not been a solution for women and only a very small minority of Americans believed that every woman should be free to follow the career of her choice.

In modern society particularly, work is a source of personal identity. In an industrial society, people introduce themselves by indicating the kind of work they do, and what one "does" because an important of whom one "is". Thus, one's work and employment are an important part of the definition and evaluation of self. In America, work is an especially important determinant of social standing, because our ideology of opportunity gets interpreted as opportunity for choice, training, and advancement in occupation. Hence, whether sociologist approach stratification from a functional perspective stressing division of labor or from a Marxist position emphasizing relation of production, they tend to agree that work and occupation are "solid social facts that condition life chances". (4)

Over the years, women have been viewed by society in many ways to their function in society truly should be. Between 1890 and 1920, known as The Progressive Era, nearly everyone believed that women's first duty was to bear and raise children and maintains the household duties, and that women were better fitted for these than any other function. Nearly everyone agreed that it was sometimes necessary and proper for some women to work, and that some jobs outside of the home was suitable for some women. However, there was wide disagreement about the jobs a woman might pursue. At one extreme, Americans believed that no female should work unless compelled to by the absence of the male breadwinner, and that very few jobs were appropriate for women. Work and relationships between men and women are two subjects that are questions of women's employment.

Table 1 Employment and Earning State by State BaseD on Rank and Grade (Discrimination)

Source: Women in the State (https://statusof women data. org)

State Employment & Earning	Rank	Grade
Maryland	2	B+
Massachusetts	3	B+
New York	5	B+
Alaska	6	B
California	6	B
Minnesota	7	B
Georgia	24	C+
Oregon	28	C
Nebraska	29	C
Texas	32	C-
Ohio	33	C-
Florida	36	D+
Tennessee	38	D+
West Virginia	50	F
Mississippi	51	F

We can be certain that changes in the types of women's work have been influenced by what people have thought and felt about women and about the nature of work. Women are almost half of the workforce. They are receiving more college and graduate degree than men. Yet, an average, women continue to earn less than men.

In 2017, female full time, year-round workers made only 80.5 cents for every dollar earned by men, a gender wage gap of 20 percent. Women, on average, earn less than men in nearly every single occupation. See table 1 and sources*

The employment of women was a major public issue around the turn of the century. The increase in labor-force participation of women has been called the outstanding phenomenon of our century. Women's participation in the labor force affects every aspect of life, including trends in fertility, marriage and divorce, patterns of marital power and decision-making, and demand for supportive services in the economy. For this reason, it is said that the greatest changes of the twentieth century may result not from atomic energy or the conquest of space, but rather from the tremendous increase in the proportion of women working outside the home (Rozen, 1979) (5).

LITERATURE REVIEW

Studies on the impact of women discrimination are a relatively recent phenomenon, with the most notable works published in the past few years. For women in American, it has been a diverse story, which has been affected by women's family roles, discrimination, the changing economy, technological change, and their own choices. Women were in the workforce since the 18th century and increase in the 19th century. They were normally employed as domestic servants. The normal practice was for women to quit their jobs when they got married.

In the 18th century women began to find a small voice in the workforce and broke into new and professional industries. The Consumer's League, founded in 1899, sought to improve working conditions and wage Gap for women (AFSCME 2020).The parliamentary surveys from 1833 and 1861 suggested that women earned 40 percent as much as men(Robinson, 1889). The wage gap continues and look at the La Ronda Rasmussen, a plaintiff in the case, alleges that she has been paid tens of thousands of dollars less than her male Co-workers, despite the fact that she performs the same work. MS. Rasmussen's Lawsuit seeks to close "the egregious gender pay gap that appears to be ingrained in Disney's culture. The gender pay gap addressed by this Lawsuit is all too familiar, and women are fed up with being on the pay discrimination that Disney is subjecting its hard- working female employees too. It is only fair to demand equal pay for equal work ".

MS. Rasmussen earned at least $24,000 less than the average male holding the same title of "manager, product development." (Lori E. Andrus & Lee Anderson LLP 2017).

Background

Earlier in the century it was virtually impossible for women to obtain professional training or to get white-collar jobs. But now at the end of the century they are working as lawyers, doctors, journalists, and in a variety of other white-collar and professional occupations.

The importance of these attitudes toward women's employment cannot be measured in terms of the small numbers that supported one view or the other. People at all levels of economy and social status were influenced to some degree by the attitudes and ideas of both sides of the issue. The antagonistic view toward the employment of women is perhaps best illustrated by the idea that almost all women should retire from work when they marry.

In general, it is difficult to say how much the feminist's movement contributed to broadening education and economic opportunities for women. The growth of the industrial economy and the movement of democracy, which influenced much of the nineteenth century certainly helped their efforts and contributed to their progress.

At the end of the World War II, most people expected a period of severe unemployment and expected that the married women who had taken these jobs should return to home making. In 1946 and 1947 many of them did, even though the post-war depression failed to materialize. By the beginning of 1958 the number of women in the labor force reached 23 million for the first time. Today it is permissible for any woman to work. In fact, four out of ten workers in the U.S. are women. Among the professions, they account for about twelve percent of doctors, up from six percent in 1950, and close to fifteen percent of the nation's lawyers, up from only four percent in 950. Even more dramatic has been the increase in the managerial ranks, where nearly fifteen percent hold management jobs, which is more than double the rate of twenty years ago (6).

Discrimination and Earnings Gap

The vast proportion of working women are in a restricted number of jobs and in low-paying, low prestige, and in lower power positions than men. Even within the same major occupational groups, women's earnings are lower than men's (see Table 1). In addition to receiving less pay, women are often excluded from important fringe benefits (7).

The gap in earnings between the highest paid and lowest paid occupations is quite large. The most obvious difference is that the weekly earnings of women are, as a rule, considerably less than the earnings of men. A portion of the earnings gap between men and women is attributable to the fact that the majority of women are employed in a fairly narrow set of low-wage; female-dominated occupations while a significant number of men are employed in a different set of male-dominated, high-wage occupations. This division of the occupational structure into "female" occupations and "male" occupations is generally referred to as occupational segregation, although some economists prefer the less pejorative term "occupational concentration." (8)

From a human capital perspective, the process begins in school, there boys and girls acquire different quantities and qualities of human capital. Few boys, but many girls, expect to become homemakers, perhaps not for their entire working lives, but at least for a time when their children are young. Because of these different expectations, girls take courses in school (for example, home economics) that explicitly train them for work in the home after graduation. From an institutional perspective, this is one reason that women do not have the same opportunity to acquire as much human capital as men. It is true that boys and girls follow different tracks in school, but more because of sexism and discrimination than rational choice. On one level, the sexism in our culture socializes girls to prefer office education classes over auto mechanics in high school, or in college English literature over civil engineering. These sex role girls into areas of study leading to careers. Girls also obtain less human capital because of discrimination.

Because of the segmented nature of the labor market and the unequal education and training opportunities provided women, the minorities of women are crowded into a relatively small set of occupations in the labor market, resulting in intense competition for jobs and low wages. Occupational crowding cannot totally explain the low level of earnings in female occupations.

This wage differential "gap" exists in both advance and undeveloped countries. So it is heartening that this is a major issue of the international women's movement.

SUMMARY AND CONCLUSION

More than six billion people now live on our plant and every single person is the unique combination of genes which is both the cause and the consequence of our differences. In modern society particularly, work is a source of personal identity and people introduce themselves by indicating the kind of work they do, and “does” because an important basis of whom one “is”.

Over the years women and minorities have been viewed by society and political power in different ways as to what their function in society truly should be. There was wide disagreement about the jobs a woman might pursue. The increase in the labor-force participation of women has been called the outstanding phenomenon of our century. The growth of the industrial economy was on their side, as well as the movement of democracy, which influenced much of the nineteenth century. Therefore, the women make progress and today, four out of ten workers in the U.S.A. are women. But most women and minorities are still working in a restricted number of jobs and in low-paying, low – prestige, and low -power positions.

Even within the same major occupational groups, women’s earnings are lower than man’s and do not have the same opportunity to acquire as much human capital as white men.

FOOT NOTES

(1) * Women in the state, https://status of women data.org, 2019.
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Welcome to the American National Business Hall of Fame

The ANBHF is a nonprofit education and research organization dedicated to creating an awareness, understanding and appreciation of exemplary business leadership. We research and promote outstanding examples of business leadership, exposing students and the public to their stories. The ANBHF also supports specific areas of academic research in management and business leadership.

One of the great strengths of the free enterprise system is its ability to create the conditions under which entrepreneurship and managerial leadership thrive. Our laureates demonstrate that lasting business success is usually based, not only upon hard work and a concern for the bottom line, but also upon a willingness to make unpopular decisions when necessary, a concern for the customer and a concern for employees. Moreover, they demonstrate that capitalism is consistent with a high standard of ethics.

Established in 1972, The American National Business Hall of Fame is dedicated to creating an awareness and appreciation of America's rich heritage of exemplary business leadership. Our organization revolves around several key programs. The foundation is our ANBHF Laureate program. We identify and induct outstanding American business leaders into the ANBHF. These exceptional business leaders' case histories offer the practical management techniques to which the laureates and historians attribute their success. In addition, the laureates' lives provide inspiration -- to take risks, to strive for excellence and to set high ethical standards.

The organization also recognizes living laureates as ANBHF Fellows. These leaders represent a career story which will be reclassified as laureates after their death. Finally, the organization recognizes Situational Role Models. These individuals represent business leaders whose careers have episodes worth remembering and celebrating but whom, for various reasons, the selection committee of the ANBHF did not feel comfortable naming the individual fellows or laureates. In this case the selection panel decided that specific ethical lapses in an otherwise memorable career were too serious to justify elevating the individual to the status of laureate. In other cases, the individual committed a management error so serious as to be of major concern to the panel of judges. Henry Ford is an example of a business leader whose extraordinary positive contributions to American economic development were seriously tarnished by several noteworthy ethical lapses and management errors. The ANBHF board recognizes the possibility that judges erred in placing persons in this category and welcomes public requests for reconsideration

The American National Business Hall of Fame program is managed by an executive office and a Board of Representatives from universities throughout the United States.

SAMPLE PAPER FOR THE JOURNAL OF BUSINESS LEADERSHIP OR PROCEEDINGS PUBLICATION

Jane Smith, University of Abcdef

ABSTRACT

Each paper must start off with an abstract (with the exception of case studies). The abstract should be approximately 300 words and summarize the topic and findings of the paper. It should also be italicized and be formatted in the same manner of the rest of the document (see instructions below).

When you complete your manuscript, we will ask you to submit the "camera ready" manuscript as a MS Word file (.doc or .docx). Please work with us to make the document look great! Follow these directions carefully, and the result will be a highly professional appearance.

INTRODUCTION

The following sections of this document will give you some insight into how you can use this document as a template to create a nice looking paper. However, you do not need use this file as a template if you are mindful in how you format your own document. The aim is to make your document look "**camera ready**" so that we do not need to make any modifications. For your convenience a summary of the key elements is as follows.

- The page size for the document should be set to 8.5 by 11 inches.
- The margins should be set at one inch all around.
- The document must be single spaced.
- Turn on Widow/Orphan control and avoid headings to break over a page.
- Do not use headers or footers.
- The font used should be Times New Roman, 12 point (with the size exceptions mentioned below for quotes, tables, and references).
- The document must use full justification throughout (with the excepting of the headings that need to be centered).
- Each paragraph should begin with a left tab or first line indent of one half inch (typically the default tab option).
- There should not be any extra blank lines between paragraphs unless there is a section of text that needs to stand out from the other paragraphs.
- Title of the paper must be in ALL CAPITAL LETTERS, bolded, centered and in 18 point font.
- The Author's names and affiliations should be in 14 point font, bolded and centered. Please do not use honorifics for author names (i.e. PhD, Dr., etc.)
- Main Headings in the document should be in ALL CAPITAL LETTERS, bolded and centered in the default 12 point font. Subheadings should be in Initial Capital Letters, bolded and left justified. Pay attention not to orphan a heading from thetext that follows at the bottom of a page. More information on headings can be found in the sections below.

If the paper contains hypotheses, lists, formulae, tables, figures, footnotes, etc., please read those sections below for more information.

- References should be APA style in 10 point font, single spaced between references, with hanging indents.

The important thing is to make your document look consistent with this document before it is submitted for publication.

FORMULAE

Below we have inserted some meaningless formulae just to serve as an example. In this example we offset the equation by one half inch, then set a left tab on the ruler bar at the margin to handle the display of the equation number. You change the type of tab on the ruler bar by clicking on the little icon at the far left edge of the ruler bar. The type of tab will change, and then you can click on a location within the ruler bar to insert the newly defined tab.

$$\sqrt{a^2+b^2}\quad x\lim_{x\to\infty}\left(\frac{-b\pm\sqrt{b^2-4ac}}{2a}\right. \qquad (1)$$

$$\sum_{i=1}^{n} X_i = \frac{\square}{n}$$

When you have certain formulaic characters that are simply italicized letters (i.e. *r, z*, etc.) that you would like to include in the body of a paragraph, it is best just to use the letter rather than a formula box. Formula boxes in the body of paragraphs can alter the line spacing, which we would like to avoid, if at all possible.

TABLES

We encourage you to submit your tables just as you would like them to appear. With that in mind, we do have a few requests to maintain some consistency from one paper to the next. We would like for the table contents to be in 10 point font (or smaller if the size of the table calls for it) and centered on the page. Tables should NOT exceed the width of the one inch margins of the document. Please include the table's title **inside** the borders of the table as shown below. The table title should be centered and bolded, and in the same size font as the rest of the table.

Left justify, center, or right justify columns in your table to make your material more readable, as you desire. Please note that an auto indent setting in your "Normal" tab will affect the contents of your table. To correct this, highlight the table, open the "Paragraph" box in the "Home" tab, and remove the first line indent instruction. Also, please place the tables in the body of the document where you would like them to appear. If the table breaks a page, move text material from above or below to keep the table on one page. If the table cannot fit on one page, set the title and descriptive rows to "repeat" on the following page.

Table 1 DESCRIPTION OF STUDY Table Title on the Inside		
COMPANY	Name	DATE
ABC	A Name	1/1/2020
DEF	B Corp.	1/2/2019
GHI	C. Name	5/5/2018
WXY	D. Inc.	7/21/2017

If your table is extremely complex, or extremely large, you can try to get it to work by sizing down the font to 9 point, or even 8 point. Do NOT go below 8 point type as that will make it extremely difficult to read your table. If you are still unable to get your table to work on the page, then you must create it as a jpg and shrink it to fit.

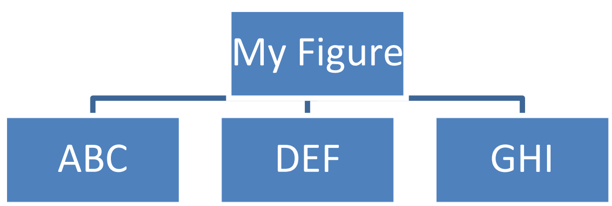
We do not accept landscape tables or figures. You must scale the table to fit in portrait mode. If you are unable to handle this yourself, you may contact us for advice or engage us to handle the conversion.

We might advise you concerning tables, that extremely complex, or busy tables are difficult to read, and do not add to the manuscript. It is better to use simple tables, even if you need more of them, than to create something that no one can understand.

FIGURES

Your figures should always be centered, and should have a title for reference purposes. When you create figures, remember to use Times New Roman as the font in the figure, and think about how it will look in the journal. Generally, figures should not exceed 6 inches in width. Put the figures where you want them to appear and format them the way you want them to look in the final document.

Figure 1



If you have extremely complex figures, or if you have trouble placing them in the manuscript, you may need to consider engaging us to process the figures. You may contact us for a price quote for any aspect of the formatting process.

GUIDELINES FOR CASES

Prepare cases as described above with these exceptions. First, instead of an abstract, begin the case with a "Case Description" and a "Case Synopsis," both in italics as illustrated below. Technical information is in the Description, while the Synopsis should gain the reader's interest. The body of the case should follow the synopsis, separated by a heading. Prepare the "Instructors' Note," described more fully below, in accordance with these instructions as well.

The description and synopsis are important as they communicate basic information about the case to the reader. Never forget that the Note is actually more important than the case, at least in the perspective of accrediting agencies for your university!

CASE DESCRIPTION

*The primary subject matter of this case concerns (**describe the most important subject, ie, entrepreneurship/conflict management/ethics/etc.**). Secondary issues examined include (**list as many as the case contains just like for the primary subject**). The case has a difficulty level of (**choose one of the following:** one, appropriate for freshman level courses; two, appropriate for sophomore level; three, appropriate for junior level; four, appropriate for senior level; five, appropriate for first year graduate level; six, appropriate for second year graduate level; seven, appropriate for doctoral level). The case is designed to be taught in (**indicate how many**) class hours and is expected to require (**indicate how many**) hours of outside preparation by students.*

CASE SYNOPSIS

*In this section, present a brief overview of the case (**a maximum of 300 words**). Be creative. This section will be the primary selling point of your case. Potential case users are more apt to choose cases for adoption which catch their fancy.*

The Case Description and Case Synopsis are not used when the case is assigned to students. Their purpose is to inform instructors and prospective users of the case.

CASE BODY

The body of the case will follow the description and synopsis, and should be formatted in accordance with the forgoing instructions. Avoid using photographs or extensive exhibits which will make reading the case more difficult. The general rule of thumb is, if looking at this exhibit is not important to the decision point of the case, then omit it.

Please do NOT include assignment questions in the body of the case. These should be in the Instructors' Notes. Leaving them in the case body will prejudice student readers, as they will seize on the assignments, ignoring much of the content of the case.

INSTRUCTORS' NOTES

Instructors' Notes are an important part of the referee process and must be included with all cases submitted for review or for publication in any form. Notes should be prepared in accordance with these publication guidelines and prepared as a separate manuscript and a separate file because the case notes are published in a different issue from the case.

Prepare Instructors' Notes for use by instructors who are not familiar with the case issues. The note should allow the instructor to teach the case without additional research. Begin the note with a **REPEAT** of the Case Description and Case Synopsis. Follow the Case Synopsis with Recommendations for Teaching Approaches. Specific questions, assignments or teaching methodologies should follow. Be sure to **INCLUDE ANSWERS** for all questions or assignments. Please do not include the questions and assignments in the case, but include them in the Instructor's Note instead. This gives instructors more flexibility in what to assign. Epilogues, if appropriate,should close the note. If your case is from library research, include the references for all material used in a **REFERENCES** section.

REFERENCES

References should be completed using APA style. They are to be single spaced left justified and completed in Times New Roman 10 pt

AMERICAN NATIONAL BUSINESS HALL OF FAME

PUBLICATION POLICIES AND PROCEDURES

Review Process

All journal submissions undergo the double blind, peer review process by members of the Editorial Review Board. The Editor strives to maintain an acceptance rate of 20-25% or less for first time submissions. The review process is as follows:

1. The journal Editor will review papers for appropriateness, and use a plagiarism verification tool to ensure the work has not been plagiarized.
2. The Editor will send the manuscript to two reviewers, without disclosing the identities of the authors or second reviewer.
3. The review results are confidentially delivered to the Editor, who then reviews the feedback to ensure the comments are relevant and non-discriminatory. The reviewer comments are sent to the author(s) with the Editor's decision regarding publication.
4. The reviewer feedback and Editor's decision is sent to the authors. Submissions are either Accepted, Accepted with Minor Revisions, Accepted with Major Revisions, or Rejected for publication.
5. Author(s) receiving an accepted with revisions determination are instructed on the process to revise and resubmit the article.
6. Revised papers are returned to the Editor who returns the revisions to the original reviewers.
7. Feedback from the second round of reviews are processed in the same manner. In some cases, author(s) are given a second opportunity to revise and resubmit papers should they not be found acceptable after the first revision.
8. If accepted for publication, the author(s) are notified by the Editor and provided with instructions on the submittal process.

Accepted Journal Article Requirements

The requirements for journal publication include:

1. The submission must be formatted according to **SAMPLE PAPER FOR THE JOURNAL OF BUSINESS LEADERSHIP OR PROCEEDINGS PUBLICATION.**
2. All author(s) must read and agree to the **ASSIGNMENT OF COPYRIGHT TO THE JOURNAL OF BUSINESS LEADERSHIP.**

Ethics Policy

The Journal of Business Leadership publication ethics policy follows the Committee on Publication Ethics (COPE) Best Practice Guidelines for Journal Editors, reviewers and authors. The JBL attests journals remain transparent and neutral to regions, religion, and will not discriminate based on the age, gender, race, and people that are physically challenged. The journal strictly abides by the review for publication ethics as recommended by the COPE and remain transparent in acknowledging the source while publishing the information on a collaborative mode.

Authors verify: Submitted manuscripts are the original work of the author(s), and that all contributing authors are listed and given credit. Manuscripts have not been published nor are under consideration by another journal concurrently. All sources of data used in the development of the manuscript are properly cited.

Reviewers verify: Manuscripts are reviewed based on the intellectual content of the paper without regard of gender, race, ethnicity, religion, citizenry or political values of author(s). Conflicts of interest during the review process must be communicated to the Editor. Manuscript information is kept confidential. Any concerns regarding the review of a manuscript are communicated to the Editor.

Editors verify: Manuscripts are evaluated in fairness based on the intellectual content of the paper without regard of gender, race, ethnicity, religion, citizenry or political values of authors. Conflicts of interest pertaining to submitted manuscripts must be disclosed. Manuscript information is confidential. Publication decisions of submitted manusripts are based on the reviewer's evaluation of the manuscript, policies of the journal editorial board and legal restrain acting against plagiarism, libel and copyright infringement rest with the Editorial Board.

Right of Editors and Reviewers to Publish in Journals

Editors and reviewers are allowed to publish their original research in the journal. If an Editor wishes to have a paper considered for publication, the Co-Editor or Associate Editor will send the paper out for review. The review process for papers by Editors and Reviewers is the same as any other paper and no preference is given. A strict blind review process is maintained in all cases.

Retractions and Corrections

Should any paper need to be removed or edited from the journal, the issue will be updated accordingly and republished.