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Valuing Non-Degree, Online Training: An Examination of Hiring Managers' Perceptions of MOOCs

Joseph A. Rosendale

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VALUING NON-DEGREE, ONLINE TRAINING: AN EXAMINATION OF HIRING
MANAGERS' PERCEPTIONS OF MOOCS

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Philosophy

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August 2016

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This study examines hiring managers' perceptions of Massive Open Online Courses (MOOCs) as compared to traditional degree-conferred forms of higher education in relation to hiring and employment decisions. Evidenced by current enrollment figures and growth projections, higher education trends reflect a transformation in 21st century education by moving toward free-sourced, open educational courses. Connectivism, human capital theory, and credentialism create the triangulated theoretical lens through which this study investigates the phenomena of MOOC-related educational offerings. A purposive sample of 202 active hiring managers and employers participated in an online survey that addressed the main research questions: a) What are hiring managers' attitudes toward MOOCs as a form of postsecondary education? b) What is the relationship between differing demographic characteristics among hiring managers and their perceptions of MOOCs as a viable educational source? Analysis of the data reveal that hiring managers have a clear preference for traditionally-educated job applicants but employer demographics, apart from organizational procedures, do not significantly impact their overall perceptions of MOOCs' value. While MOOCs have the ability to increase prospective employees' human capital, results from this study indicate hiring managers' suspicion of communication skills developed through connectivist learning environments in addition to employers' continued support for credentialism-based hiring practices.

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CHAPTER I

INTRODUCTION

The advent of the Internet and twenty-first century web technologies has spawned a new type of educational environment, and as a result, a new type of learner; one who has significantly more post-secondary educational and training options available than just a decade ago.

Educational institutions, from colleges to scholastic resource producers, have embraced the concept of distance education as a means of increasing revenue and attracting students from well outside the confines of geographic location (Kolowich, 2013). This phenomenon shows no signs of slowing, and thus, the global workforce should expect job seekers to begin citing free-sourced online education as their primary form of post-secondary training. Massive Open Online Courses – herein referred to as MOOCs – and learning repositories utilizing Open Educational Resources (OERs) may be the next step in online education, whereby the learner has access to concepts and coursework in specific areas that do not result in degree confirmation or university credits.

MOOCs and open educational resources offer several benefits to many educational stakeholders. Students can benefit by utilizing content that is either free or at a lower cost than publisher-distributed content. Free-sourced publication material copyrights often allow instructors the ability to customize and re-purpose information and educational materials, and OER tools manifest increased faculty collaboration and higher student achievement (Glance, Forsey, & Riley, 2013). The value of MOOCs, however, is relative to each participant; while some are concerned with the academic authenticity of the movement, others see a potential to show their ability to learn independently. Using MOOC credentials or certificates, participants

have the opportunity to show commitment to furthering their education and enhancing their worth (Youngman, 2013). Moreover, while specific survey numbers are limited, many students state that they are excited about the flexibility, self-paced instruction, and customization options available through MOOC courses (Bruff, Fisher, McEwen, & Smith, 2013).

The underlying basis for this study is the contention that technological change in the higher education market is clearly a complex issue facing multiple educational constituencies. These key groups consist of students, instructors, learning-resource publishers, universities, hiring managers, and workforce recruiters, among others. Each of these stakeholders will face an impact from the growing trend of open educational learning media, such as MOOCs. This study will provide background information with respect to the current state of MOOC research, discuss representative theoretical perspectives, and – by employing a survey design and accompanying empirical data analysis – advance the overall body of knowledge that currently exists regarding MOOCs as a phenomenon. As modes of education continue to transform, research and data addressing labor-market needs and employer demands should be a driving part of that transformation. Thus, central to this study's importance is the influence that MOOCs will have on future generations of learners, job-seekers, and employers in the workforce.

Background of the Study

Current research in labor statistics indicates a clear connection between education, employability, and career advancement (Bureau of Labor Statistics, 2015). Afforded by advancements in new technologies, educational learning opportunities are available to many more students, and continue to change the educational landscape. Likewise, as the cost of a traditional college and university education continues to rise, so too does the number of students considering a lower cost, non-traditional means of learning and education after high school

(National Center for Education Statistics, 2015; Norris, 2014). MOOCs are attractive not only to learners, but also to institutions of higher learning. MOOCs represent a way for universities to expand their marketing capabilities, recruit students outside their regional thumbprint, improve their faculty's online teaching practices, and increase their international prestige through innovative MOOC offerings (Negrea, 2013; Wilson, 2012). Further, from a return-on-investment standpoint, some universities perceive MOOCs as a contributing factor to a more sustainable financial bottom-line and lengthier operational posterity (Wilson, 2012). While most MOOC courses are currently available free of charge, Shah (2015) cited the increased revenue MOOCs potentially offer universities by way of providing certificates of completion and even nanodegrees that learners can purchase once they have finished classes or a set of related courses.

Spanning the last decade, Internet technologies have amplified the options for distance education and online learning, and MOOCs have emerged as a disruptive, yet potential alternative to traditional educational offerings. MOOCs are free, online courses using open-sourced materials delivered by some of the world's best universities (Chen, Barnett, & Stephens, 2013). First introduced in 2008 at the University of Manitoba by Stephen Downes and George Siemens, MOOCs evolved from early 21st century distance education programs using fully online platforms (Sanchez-Gordon, Calle-Jimenez, & Lujan-Mora, 2015). In 2011, Stanford University professor Sebastian Thrun and Google executive Peter Norvig offered the course "Introduction to Artificial Intelligence" as a MOOC and enrolled over 160,000 students (Jacoby, 2014). Aside from the interest MOOCs are receiving from learners evidenced by increasing enrollment, MOOCs are also gaining serious attention from institutions of higher education (Shah, 2014). *The New York Times* dubbed 2012 "The Year of the MOOC" after top universities

such as Stanford, MIT, and Harvard began to offer some of their classes as MOOCs, affording individuals around the world the option of an elite educational experience at a relatively low cost (Pappano, 2012). More than a decade ago, however, Dr. Richard Baraniuk of Rice University began operating a website offering open learning resources online. Open-source resources are similar to a public library where one can view educational materials such as digital textbooks, videos, and podcasts, with no costs outside of an Internet connection. In 2012, Baraniuk (2012) postulated that MOOCs may harness the potential to mitigate the educational crisis faced by learners having increasingly fewer opportunities to access high-quality educational resources.

While similar in content and initial delivery, MOOCs differ considerably from traditional forms of for-credit online college courses. Unlike an online class taken for credit as part of a university's degree program, MOOCs typically drift from pedagogically-sound practices of teacher-led instruction. MOOCs stray from a static content-hierarchy learning environment to a dynamic user-generated collaboration of connected ideas. Whereas traditional online courses place the professor as the knowledge center, much of MOOCs' knowledge centers on participant interactions with each other. Formative and summative evaluations and instructor feedback cannot scale to the thousands-per-course student size of MOOCs, thus automated and peer-to-peer grading are commonplace. Certification of course completion poses the greatest difference between MOOCs and traditional online college classes. Currently, completing a MOOC in its entirety entitles the learner to an informal online badge or certificate certifying the course was completed but is not tied to a larger end-degree course program. Although MOOCs allow learners to share and increase their expertise in a wide array of disciplines, individuals seeking college degree credentials may not directly benefit from MOOCs at present (De Waard, 2013).

Attitudinal research from MOOC participants shows evidence of the many advantages they provide, such as time, accessibility, and cost savings (Bruff, Fisher, McEwen, & Smith, 2013; Youngman, 2013; Zheng, Rosson, Shih & Carroll, 2015). Faculty and administrators also see value in MOOCs, citing the vast number of students reached, long-term learning gains, and increased institutional exposure to universities (North, Richardson, & North, 2014; Radford, Robles, Cataylo, Horn, Thornton, & Whitfield, 2014). However, research sampling employer-level stakeholder groups provides little evidence as to the attitudinal perceptions or pragmatic value of this type of educational attainment from hiring managers' perspectives.

Statement of the Problem

Growth projections estimate a 13.9% increase in overall higher education enrollment by the year 2022 at degree-granting institutions (National Center for Educational Statistics, 2014). Similarly, research projects that MOOCs will grow by over 56% through 2018 (Sufrin, 2014). Based on these growth trends and the projected changes to the current educational landscape, there is a deficiency in the research citing employers' willingness to consider MOOCs in place of traditional higher education degrees. Given current research in the field, there is a significant gap in the literature regarding hiring managers' perceptions of the value of MOOCs as compared to traditional, degree-conferred means of higher education. Therefore, this research directly addresses the problem at hand, in order to offer empirical data analysis and recommendations of an issue that is of critical significance to higher education stakeholders and others.

Purpose of the Study

Since their initial offering in 2008, MOOCs have continued to increase steadily in both breadth of course offerings and number of enrolled participants (Herman, 2014). Additionally, many leading institutions have begun offering free online MOOC courses as part of their

distance education repertoire. However, the sheer demand for MOOC courses and the quality of their programming do not necessarily mean that they are meeting the basic tenets of higher education as relevant literature so defines it; that is, preparing learners for employment, thus allowing them to gain better positions within organizations while contributing to economic advancements (R. King, 1995; Wise, 2013). If institutions are going to direct additional money and resources at MOOCs – while more post-secondary learners continue to seek MOOCs in place of traditional higher-education – then more research is necessary to determine the pragmatic value of MOOCs on the open market. Therefore, the paramount mission of this study is to provide necessary exploratory research into the changing field of higher education from the perspective of hiring managers. Hence, the purpose of this study is to explore and describe hiring managers' perceptions of MOOCs as post-secondary educational credentials for employment and career advancement.

Academic Rationale

Implications of MOOCs' future development are not only of concern to those in the labor force. While broad, the field of applied communications is implicitly focused on the collection of research that is “fundamental to all human endeavors” in order to “... find out what people are thinking and doing” (Buddenbaum & Novak, 2001, p. xi). It is therefore logical that research regarding technological changes and education-based communications are of critical importance to both academics and social science researchers alike (Morreale & Pearson, 2008). Rather than attempting to determine the overall quality of MOOCs, this study instead seeks to demonstrate their perceived value as part of the greater educational landscape, thereby either reinforcing or weakening the dominant theoretical and academic paradigms. The precision and rigor with

which this research was conducted will also function as an example and framework for future studies within this academic area.

Viewed in part through the triangulated theoretical lens created by connectivism, credentialism, and human capital theory, this study advances an understanding of the human condition as pertains to peer-led communication in online learning environments and the value of higher education credentials in the 21st century. The implications associated with this study, when compared to theoretical assumptions of communication and education, therefore serve as an example of how prevailing ideologies in the labor force manifest themselves into hiring practices inconsistent with the criticisms of modern higher education. Seeking to provide a tangible measure of the uniformity between industry expectations and educational programs, this study helps to answer the pressing question of traditional higher education's place in 21st century knowledge attainment. Aiding in the construction of new scientific understanding, the resulting outcomes of this study extend each theoretical position with regard to their respective explanatory and predictive power within this burgeoning field.

Significance of the Study

This study fills a current research gap as evidenced in the literature; employers' perceptions of MOOC-educated job applicants when compared to traditionally-educated / degree conferred job applicants. This research benefits many stakeholders, including educational institutions that are currently offering MOOCs; current MOOC participants; high-school students who are looking for non-traditional options for higher education; professors who may be affected by massive courses that can teach 5,000 students at once, dramatically reducing the current in-classroom student to teacher ratio; and academic publishing organizations, whose resources are now available as free-sourced options. By determining the value of MOOCs as employers

pragmatically view them, each stakeholder group can better determine its future positioning of MOOC-related resources in addition to time and money allocated in MOOCs' direction.

Theoretical Framework

Online learning through MOOCs was borne out of many educational and instructional theories, most of which have sound historical underpinnings. Connectivism, human capital theory, and credentialism are three general learning theories that when applied to MOOCs, create a triangulated lens through which researchers can view and study them. Although there is some criticism of the MOOC educational model, the increased power and effectiveness enabled by students' actively learning together while online are core elements of connectivism theory. Additionally, the improved worth of an increasingly educated nation, regardless of the mode of instruction, is an inherent factor of human capital theorists' supportive stance on MOOC learning frameworks. Last, credentialism explains how employers and workforce managers evaluate job applicants based on educational attainment, which may be increasingly difficult due to the projected movement toward MOOCs in higher education.

Connectivism

The emergent phenomena of connected personal learning networks within MOOCs is able to link each student's current knowledge to novel materials and resources in order to create new meaning within the group. Connectivism is a way of examining how learning and knowledge transfers occur between participants in technology-supported online networks such as MOOCs. Due to large student enrollment in MOOCs, connectivism practices tend to increase peer-to-peer interaction for assignments, grading, and general questions more than traditional college courses. Using online forums and learning management systems' discussion boards, MOOC learners receive encouragement to interact with other participants and create a connected

online community to promote information sharing (Siemens, 2005). However, practical concerns arise due to the requisite self-management involved, as learners must set their own learning goals, locate their own resources, and use technology without the support of an institution's IT department (Kop, 2011). With some MOOC participants shying away from the complexities of inter-connected peer learning and opting for individual autonomy, connectivism's effectiveness may affect learners' social-comfort levels online (Mackness, Mak, & Williams, 2010). Consequently, research evidence suggests that employers believe that communication skills such as teamwork, listening, and speaking are important considerations when evaluating candidates for positions (Griffin, Cangelosi, & Hargis, 2014). Thus, this study explores employers' preferences toward job-candidates' communication skills and their perceptions of MOOCs as a way to develop those skills when compared with traditional for-credit college courses.

Human Capital Theory

MOOCs offer businesses the ability to provide additional education and training to their workers, while at the same time countering the increasing budgetary restraints many organizations face. Philosopher and economist Adam Smith agreed that investments in human capital, through training and education, could be analogous to increased productivity and profitability for labor industries and national economies (Smith, 2009). Likewise, increased training and education often leads to greater lifetime earnings and a greater quality of life for individuals (Becker, 1993). Moreover, Harvard economist Edward Glaeser noted the correlation between educational attainment and regional economic growth (Glaeser & Resseger, 2010). Through the lens of human capital theory, this study explores the value of MOOC training in consideration with its potential for advancing learning and knowledge for millions of participants

who otherwise would not have access to higher education (Hussey, 2012). Guided in part by human capital theory, this study examines whether the completion of MOOCs leads to improved employment opportunities or increased salaries among MOOC-educated job candidates.

Credentialism

The best framework with which to explain and predict MOOCs' ability for acceptance by employers as a viable alternative to credit-conferring university courses revolves around the theory of credentialism. Much of the descriptive power with human capital theory as it relates to MOOCs stems from the implied acceptance of MOOC courses by employers (Thomas, 2014). Subscribers to theories of credentialism, such as Ivar Berg (1970) and Randall Collins (1979), hold that employers use verifiable credentials such as university transcripts, degrees, and diplomas to allocate jobs to better educated people, regardless of overall skill and qualification. Although Collins believed that the connection between degrees and actual workplace skills needed was weak, he did place value on what formal education provided for students in terms of general standards of behavior and increased cognitive capacities. The theory's overarching theme focuses on variations in schooling as related to job opportunities. Credentialism arose from similar variations of sociological and educational theses, but most of the focused research in the area began gaining ground during the latter part of the 20th century due to changes in the labor market and the increased pervasiveness of institutions of higher education (Berg, 1971; Boylan, 1993; Brown, 1995; Collins, 1979). From a credentialist position, this study seeks evidence between perceptions of individuals who hold credentials, such as a university degree, and those who have non-credentialed forms of post-secondary training as related to employment candidacy. Credentialism theory is occasionally open to other interpretations of the power and elite status of those with educational certifications, but this study focuses primarily on employer

perceptions and preferences for individuals with differing variations in educational credentials. Using statistical analysis, the present research explores credentialism theory from the perspective of hiring managers and recruiters in industry today.

Research Questions

In order to explore the current changes in higher education as they impact the labor force, this study examines hiring managers' perceptions of MOOCs as compared to traditional forms of post-secondary education. The following research questions emerged following an extensive review of the available literature.

RQ1: What are hiring managers' attitudes toward MOOCs as a form of postsecondary education?

RQ2: What is the relationship between differing demographic characteristics among hiring managers and their perceptions of MOOCs as a viable educational source?

Research Hypotheses

Influenced by current literature in the field and previous research, the following research hypotheses are posited for this study:

H1₁: Hiring managers will perceive collegiate degree-holder job applicants more favorably than job applicants with MOOCs coursework.

H1₂: Hiring managers will perceive that collegiate degree-holders are more likely to gain promotion than employees with MOOC coursework

H1₃: Hiring managers will perceive job applicants with traditional college courses as having better communication and teamwork skills than MOOC-educated applicants

H2₁: Hiring managers who have taken online, distance education, or MOOC courses will perceive MOOCs more favorably than hiring managers who have taken only traditional, face-to-face courses.

H2₂: Hiring managers who have more familiarity with MOOCs prior to the survey will perceive MOOC-educated candidates more favorably than hiring managers who are less familiar with the concept of MOOCs

H2₃: Hiring managers with fewer years of industry experience will perceive MOOCs more favorably than more experienced hiring managers

H2₄: There will be a significant difference in hiring managers' perceptions of MOOCs based on differences in industry sectors

H2₅: There will be a statistically significant association between the need for employees to have good communication and soft-skills and hiring managers' perceptions of MOOCs

Delimitations and Assumptions

This study assumes that each survey participant is active in a human resource capacity and that every response accurately reflects their current perceptions and attitudes toward MOOCs. Additionally, as part of this study the following delimitations were accepted:

1. The purposive sample of hiring managers would not strictly limit the generalizability of findings.
2. While the online survey did not provide a forum to for open discussion or follow-up questions with the respondents, open-ended questions were available for participants' comments.
3. Although the cross-sectional design does not account for historical trends in workforce attitudes or labor trends, it is still representative of the current period.

4. The regional scope confined mainly to Pennsylvania and surrounding Mid-Atlantic States accurately represented hiring managers' perceptions toward MOOCs in other areas.

Chapter Summary

Continuous change is common at institutions of higher education in order to keep pace with societal and economic needs. The current evolution that extends to both online and distance education programs may not deliver on the needs of the workforce at large, however. This study therefore explores hiring managers' perceptions of current changes in higher education instructional methods, specifically based on their attitudes toward Massive Open Online Courses (MOOCs). A summary review of the literature yields little published survey data from hiring managers' perspectives with regard to the applicability of MOOC coursework in employment-seeking endeavors. This study advances a relatively new field with regard to online training options that do not result in degree confirmation or credits to the participants and/or learners.

Definition of Terms

Competency-Based Education (CBE) – Generally viewed as an alternative to traditional education, CBE refers to a system of instruction, assessment, grading, and academic reporting based on students' demonstration of learned knowledge and skills that they have learned the knowledge and expected skills as they progress through their education (Glossary of Education Reform, 2014).

Credential – A formal document conferred by an educational institution such as a degree, diploma, or technical certification that indicates an individual's achievement or completion of a particular course or study and/or examination.

Learning Badges (and/or Badges) –Certificates or indicators of an accomplishment, skill, or quality learned through a digital learning environment that have been endorsed by an educational institution (Carey, 2012).

Massive Open Online Course (MOOC) – A course of study with fixed start and end dates taken by large amounts of people (usually tens of thousands per course) via the Internet using free or low-cost educational resources provided by an instructor or course facilitator who is affiliated with a college or university.

Nano-degree – A compact online educational program or micro-credential varying in length from 6-12 months, consisting of both individual courses and skill-projects that focus on relevant skills for a specific job or competency (Udacity.com, 2015).

Online Education – A type of distance-education course in which the instructional material and interaction is delivered via online technologies without the need to attend a brick-and-mortar school (Allen & Seaman, 2014; Bebawi, 2005).

Open Educational Resources (OERs) – Also referred to as open-sourced materials; OERs “are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others” (Hewlett Foundation, 2015). OERs may include full online courses and materials, digital books, streaming videos, exam questions, software, and other tools and teaching techniques used to support access to knowledge.

Traditional Degree –Also referenced as face-to-face (f2f) education; referring to the model of teacher and learner being physically present in the same room as the instruction occurs. The prevalence of a brick-and-mortar school building is also associated with a traditional education environment.

CHAPTER II

LITERATURE REVIEW

Introduction

MOOCs represent a major disruption in higher education and the potential for significant pedagogical and business-model changes to traditional university course-delivery standards (Jacoby, 2014; Macleod, Haywood, & Woodgate, 2015). Growing in number each year since the modern MOOC movement began in 2011, reports show a 100% year-over-year increase in MOOC enrollment for 2015. From a reported 17 million students in 2014, data collected by online course aggregator Class Central shows over 35 million students signed up for at least one MOOC in 2015 (Shah, 2015). Given the evidenced growth, this chapter examines MOOCs as they pertain to current labor force needs, MOOC-related instructional methods, and key stakeholder perspectives of non-traditional higher education options. This chapter reviews available literature regarding theoretical perspectives of connectivism, human capital theory, and credentialism as they explain and relate to MOOCs. The literature and research utilized in developing the conceptual framework for this study follows methods of data examination recommended for exploratory research studies whereby the analysis identifies themes and patterns in the existing data (Bloomberg & Volpe, 2012).

Workforce Trends

Innovations in technology and advancements into global markets represent not only economic changes in goods and services, but also a shift in skills that employers need (Acemoglu & Autor, 2011). Within its report on strategic skill research, American College Testing Inc. (ACT) simplistically defined this gap as “the difference between the skills needed for a job and those skills possessed by a prospective worker” and presented findings elucidating a significant

and widening skills gap in many U.S. occupations (ACT, 2011). In an effort to narrow the skills gap, revitalize the American economy, and create a globally-competitive workforce, the U.S. Chamber of Commerce (2016) pledged to focus its resources on an agenda that advances education, training, and job growth in 2016. Believing that education is the driver of a competitive economy and workforce, the Chamber's position is to leverage technology to make higher education more accessible and affordable to learners, thereby allowing employers to find workers with in-demand skills and qualifications.

A stabilized economy and lower unemployment rates allow the American labor-force to project the greatest job vacancy rate in over 15 years (Gillespie, 2015). Represented mathematically from an algorithm created by CIO Magazine publisher Gary Beach (2013), the number of job openings, labor turnover, and unemployment rate reflected in the current index show one of the widest skills gaps since December 2000. The resulting fallout of millions of open positions may be attractive to current job seekers, but educational factors are thwarting their ability to fill those openings. Employers and experts in the workforce argue that training programs in the United States remain sub-par, and the onus is on workers to become better qualified to fill the large number of open positions effectively (Gillespie, 2015).

To achieve the requisite skills for work readiness, research indicates MOOCs' potential for cultivating the hard skills gap in the employment marketplace (Manceli, Georgilas, & Petridis, 2015). Beyond the promise of widespread generalized training, the public sector views MOOCs as a strategic addition to its active-employee development protocol. Sanchez-Gordon et al. (2015) suggest that organizations can take advantage of MOOCs' low cost, widespread accessibility, and open format to train large numbers of employees uniformly while still conforming to private and governmental training guidelines. Endorsing educational programs

such as MOOCs even further, President Obama recommended the use of noncredit courses in a recent campaign aimed at providing Americans additional training for in-demand, technology-based jobs (S. Grant, 2015).

Determining the extent to which MOOCs can mitigate current workforce needs is not a primary focus of this study. However, within the exploration of the topic area, extant literature points to MOOCs as having the educational potential to increase skilled labor in many workforce sectors while filling the short-term, technology-specific training gap faced by employers (Education Advisory Board, 2012; M. Grant 2014).

MOOC-Based Instruction

Without the requirements of geographic proximity, admissions testing, or prerequisite courses, MOOCs represent voluntary participation in higher education that is accessible to virtually any individual with Internet access seeking to enhance his or her personal knowledge (Liyana Gunawardena, Adams, & Williams, 2013). Indeed, the cornerstones of MOOC instruction are their low cost, open access, and no-barriers philosophy (Haber, 2014). Arguably though, MOOCs do not mark a major departure from traditional online course content. Though sometimes shorter in length, the workload, curriculum, and instruction within MOOCs are similar in nature to traditional online distance education pedagogical models. Further, while many MOOCs do not follow the traditional semester course sequence - classes can start anytime throughout the year - administration and instruction similarly follow traditional university protocols (Pomeroy, Epelboin, & Thoury, 2015; Ulrich, 2015). As in traditional instruction, completing a MOOC requires students to review and comprehend course materials while submitting assignments. However, MOOCs do not lead to traditional letter grades denoting differing levels of achievement, as they currently operate on a pass/fail basis. Finally, to foster

collaboration and communication, MOOCs often include embedded class blogs and social media sites which reflect the connectivist learning concepts brought about by larger numbers of learners per course (Baturay, 2015).

MOOCs' mainstream acceptance and growth have turned universities' attention from offering predominantly computer science and programming courses to almost all areas of the humanities and other non-technical options. Figure 1 illustrates the balance of courses available in 2015 (Shah, 2015). Based on the increased pervasiveness of course offerings, some universities including Arizona State and the University of Texas are beginning to offer MOOCs as for-credit replacements to many introductory-level courses (Straumsheim, 2015; Watkins, 2015).

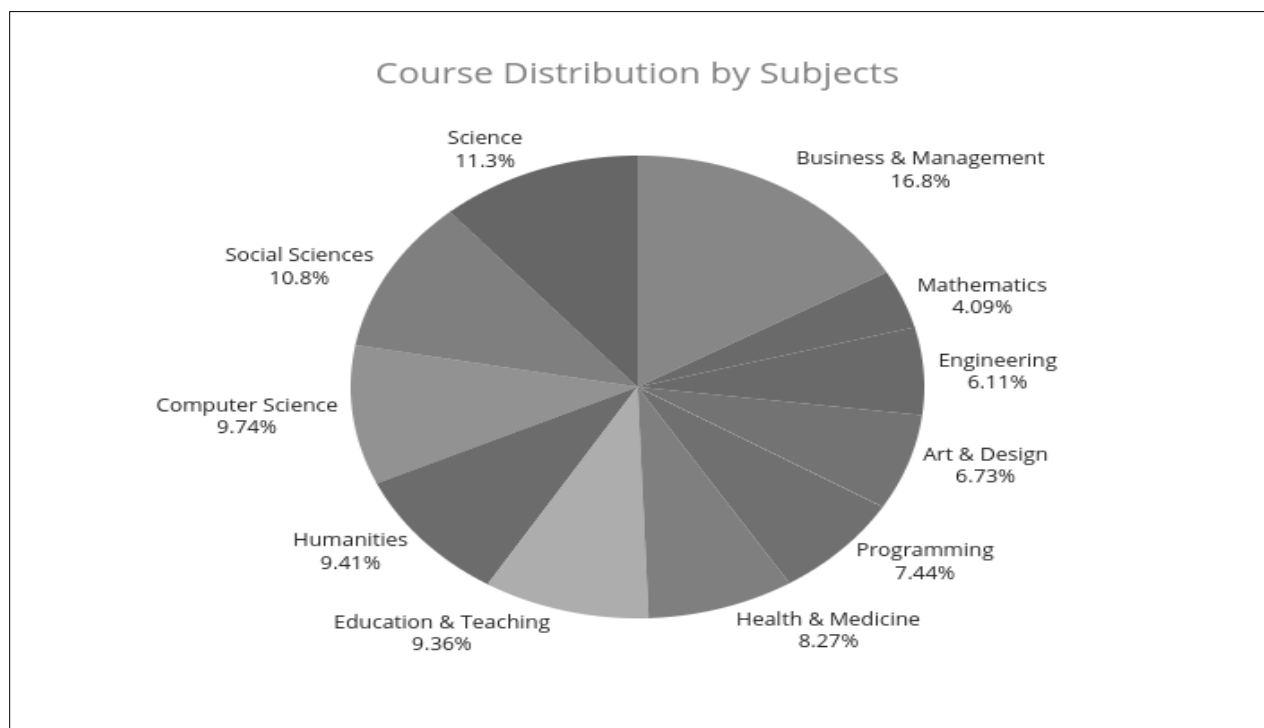


Figure 1. MOOC course distribution by subject.

MOOC delivery and administration currently follow business models typical to traditional distance education programs at universities and colleges. While free at this time,

some higher education stakeholders predict that MOOCs will be influenced by increased monetization efforts such as costlier certificates of completion and student payment options for instructional resources (Haber, 2014; Jacoby, 2014). The likelihood that educational altruism demonstrated in MOOCs will continue indefinitely is low. Governmental funding, philanthropic donations, and educational grants offer some potential income for MOOCs, but Murry (2013) argued that in order to continue offering high-value instruction, courses will inevitably require a heightened financial influx from students.

Debated currently in instructional technology research is MOOCs' ultimate position as part of the higher education landscape. Used to represent emerging technologies' utilization and popularity, the Gartner Hype Cycle model, originally developed by Gartner Advisory Firm, graphically symbolizes newly innovated products from inception through final application stages (Fenn & Raskino, 2008). Yuan (2013) embedded MOOCs' early progression into this model, as shown in Figure 2. Triggered by the 2011 Stanford University course Artificial Intelligence, MOOCs quickly accelerated up the hype cycle in 2012 evidenced through the emergence of MOOC-providers Udacity, Coursera, and edX. Fueled by 100,000 person enrollments, the peak of inflated expectations for MOOCs came in late 2012 when speculations of a Harvard-quality education for all was posited as a solution for global problems including "third world poverty...and the skyrocketing cost of higher education" (Haber, 2014, p. 10). Haber's remark, placed in the wider context of online open education, represents a microcosm of many lofty expectations bespoke of MOOCs during that period.

Following the trajectory of the Gartner Hype Cycle, in 2013 MOOC euphoria met with harsh realities common to many other novel innovations and plummeted MOOCs into the trough of disillusionment. Further discussed in the following section, criticisms of MOOCs' size,

integrity, authentication of learners, and overall quality began to appear. Currently, the goal of MOOC-related research focuses on finding MOOCs' core competencies and determining the appropriate path to reach the plateau of productivity (Haber, 2014). Tapson (2013) predicted that MOOCs' instruction will not fully reach their final plateau until 2023, forecasting the lag in productivity from societal and professional attitudes that are inexorably adverse to change. As new technologies tend to follow a similar curve, using the hype cycle model appropriately allows researchers to predict MOOCs' future role in higher education instruction by acknowledging the past and present.

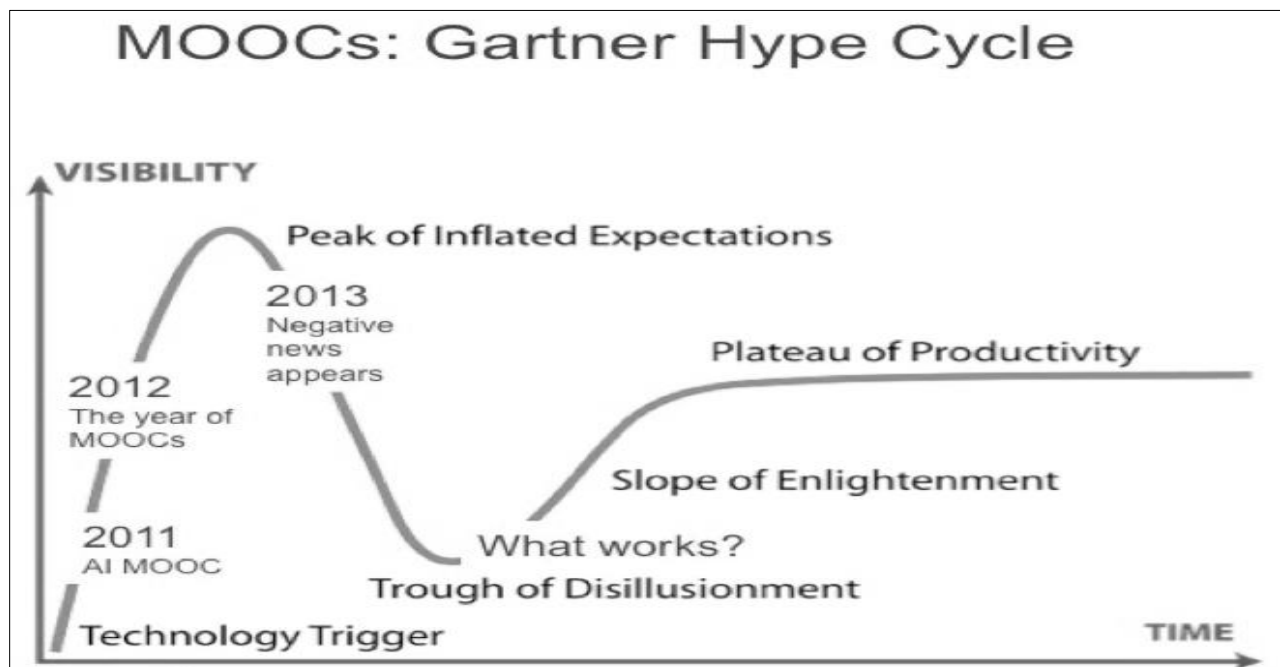


Figure 2. MOOCs: Gartner Hype Cycle model.

Challenges Associated With MOOCs

Unsurprisingly, interest in MOOCs is not without its share of critics. Support favoring MOOCs cites their potential to educate students who otherwise would not enroll in higher education courses (Paldy, 2013), but evidence showing that most MOOC learners are already in fact well-educated degree holders counters this. Data drawn from research conducted by the

University of Pennsylvania showed that 83% of the nearly 35,000 students surveyed reported already having at least an associate's degree prior to enrolling in a MOOC (Emanuel, 2013). Additionally, out of the 52,000 respondents to a 2015 survey, 83% of those enrolled in a Coursera-delivered MOOC reported previously earning a bachelor's degree (Zhenghao, Alcorn, Christensen, Eriksson, Koller, & Emanuel, 2015). American economist Thomas Friedman (2013) claimed that "nothing has more potential [than MOOCs] to lift more people out of poverty." Yet, if MOOCs represent the possibility of increased worldwide education to a disenfranchised population, the underwhelming evidence is a stark contradiction.

Moshe Vardi (2012), editor-in-chief of *Communications of the ACM*, also refuted the pro-MOOC rhetoric by citing MOOCs' inherently unsophisticated pedagogical concepts, inconsistent evaluation and assessment measures, and organizations' ulterior motives for offering MOOCs in general. As he put it, "the enormous buzz about MOOCs is not due to technology's intrinsic educational value, but due to the seductive possibilities of lower cost...My fear is the financial pressures will dominate educational consideration" (Vardi, 2012, p. 5). Even early MOOC instructor and Udacity founder Sebastian Thrun was quoted as saying that some MOOCs are "a lousy product" and "not a good fit [for disadvantaged students]" (as cited in Chafkin, 2013).

One of the most dominant points of criticism toward MOOCs emerges due to their low completion rates. While individual course numbers vary based on provider, subject, instructor, and country of origin, MOOCs' completion rates typically average between 10% and 20% of those who initially enroll in the class (Jordan, 2016; North et al, 2014). Baturay (2015) suggested that differences in learner backgrounds and motivations often dilute the overall completion numbers. Varying from traditional higher education students using MOOCs to supplement a for-credit course to prospective students merely assessing alternate learning

options, there are many valid reasons why individuals choose not to complete a MOOC in full (Baturay, 2014). Objectively, regardless of attrition rate, the overwhelming number of students completing MOOCs trumps even the largest traditional course. Given an estimated 10% success rate and 43,000 students per course (Ferenstein, 2014), mathematically, over 4,000 students complete each MOOC on average. Despite the fact that completion rates are low, they are also misleading when considering the numbers holistically and the potential realization of true mass education.

Finally, the perception of heightened cheating and plagiarism occurring in MOOCs when compared to traditional college classes is a widespread concern. Given the massive number of students enrolled when compared to the number of faculty involved, it is impossible to authenticate every student's participation (Webley, 2012). Yet unlike traditional college courses that are mandatory for degree programs, MOOC learners tend to enroll in courses due to personal interest and for their own edification; therefore Haber (2014) offered that notions of increased cheating may be unwarranted.

Faculty Perceptions of MOOCs

Despite the growing trend for distance education offerings and online courses, some professors and faculty members continue to question both the need for such offerings and whether MOOCs are just a fleeting fad or a permanent part of today's educational repertoire. Particularly, instructors who are new to teaching online or do not have a technology-based background are less likely to be supportive of online, distance education offerings in general (Haber, 2014; Lao & Gonzales, 2005). Other instructors perceive the quality of instruction in MOOCs as adequate, but reveal that there are distinct disparities in participant interactivity, noting a decrease in student activity level from traditional classes (Khalil & Ebner, 2013). Time

will tell if MOOCs are here to stay, but without a clear sense of longevity as of now, some instructors and administrators recommend proceeding with caution (Chen et al, 2013).

The shift from have-to-learn to want-to-learn is something fundamentally appealing to professors engaging in MOOC instruction. From a professor's standpoint, Fischer (2014) appreciated that many MOOC learners have more interest and passion for courses in which they enroll, due to the self-selection process inherent in MOOC education. Additionally, MOOCs' ability to generate a novel discourse about the overall philosophy of education and learning is a praiseworthy contribution (Fischer, 2014). Stanford professor and founder of MOOC provider Udacity Sebastian Thrun prophesized MOOCs' revolutionary ability to transform higher education. Quoted in *Wired* magazine, Thrun submitted that in 50 years only 10 higher education institutions would exist worldwide (Haber, 2014). While extreme, the exponential growth of distance education is not likely to crescendo at the present state of MOOCs. Pertinent research illustrates faculty members' initial hesitance toward MOOCs and the complexity of course creation, but also cites their belief in the overall movement of higher education democratization brought on by this revolution (Lewin, 2012).

Brought on by the many benefits provided to both students and instructors such as cost savings, greater availability options, and individual customization abilities, MOOCs' use of open educational resources (OERs) may also change the way educators approach their practice. Batson (2010) suggested that the future role of instructors' utilization of OERs might be to provide structure and guidance, rather than create content and context. Wiley, Bliss, and McEwen (2013) reported that the principal advantage to instructors is the rapid availability of new curriculum resources available in many OER repositories, which can be modified to fit various differentiated learning objectives. Additionally, responding to questions of quality, free-

sourced materials in OER repositories studied had no significant differences in terms of instructional effectiveness or construct quality when compared to licensed materials for purchase (Wiley, Bliss, & McEwan, 2013). By sharing educational resources and ideas openly, faculty members can build global communities of practice and widen the concepts of scholarship, teaching, and learning on an international scale. However, research found that some instructors are hesitant to use open resources due to lack of institutional support and generally prefer to use resources that they have authored independently (Van Der Merwe, 2013).

Compensation questions pertaining to MOOCs are of particular concern for professors. To create a MOOC, faculty members estimate that 100 hours of initial production time are necessary and an additional 8-10 hours of weekly interaction follow once the MOOC commences (Colman, 2013; Kolowich, 2013). Rhoades (2015) aptly raised the question of ownership rights to a MOOC and whether course materials legally belong to the professor instructing the course or the university with which it is partnered. At present, MOOCs' unique open-source platform requires faculty to forego book royalties and intellectual property rights by providing content at no cost (Haber, 2014). Fischer (2014) noted that while most MOOCs are currently free to learners, many faculty members' motivation ties to financial rewards for their time and effort such as monetary remittance for additional instructional credits or time invested in creating and delivering new courses. Future recompense for MOOC instructors may come by way of personalized tutoring and assignment help, in-MOOC advertising, and professors' ability to sell their intellectual property within the MOOC to for-profit educational enterprises (Jacoby, 2014; Selingo, 2014).

Issues of posterity are also of concern to faculty. MOOC concepts represent a way to leverage technology in order to reduce the cost of education, while at the same time economizing

on the number of teachers. With the ability to use computerized feedback or teaching assistants in place of qualified faculty members, the future trajectory of MOOCs is a cause for concern among many practicing professors (Selingo, 2014). Haber (2014) and Basu (2012) echo this belief, surmising that non-tenured and community college faculty members have a legitimate concern for their careers due to MOOCs' ability to offer free access to Ivy League professors and elite educational resources that will progressively lead to the attenuation of the entire professoriate vocation.

Student Perceptions of MOOCs

The virtuous potential of MOOCs reflects regularly through participants' feedback. The literature cites a range of student support for MOOCs stemming from increased options for widespread accessible education among non-traditional and disparate students, coupled with the potential to narrow the gap between advantaged and disadvantaged learners (Kay, Reimann, Diebold, & Kummerfeld, 2013; King, Robinson, & Vickers, 2014). For those already in the workforce, MOOCs represent the chance to gain knowledge outside of their current occupation and to learn skills needed to pursue in-demand fields. Others appreciate the self-paced learning MOOCs offer and the ability to maintain lifelong learning without the burden of increased student-loan debt (Ulrich, 2015). However, research suggests that students still desire in-person contact with faculty, and therefore prefer the face-to-face instructional modality represented in traditional classes (Dahlstrom, Walker, & Dziuban, 2013).

In a study conducted by researchers at the University of Pennsylvania and the University of Washington, data suggested that students believe the completion of MOOCs will both have educational benefits and offer tangible rewards in their careers (Zhenghao et al, 2015). Anecdotal evidence from a 2013 Coursera report suggests that students plan to use MOOCs in a

professional capacity, indicated by 25,000 students choosing to purchase a Signature Track certificate, which validates their MOOC completion (Coursera.org, 2013). Similar research also reports that besides employment-related reasons, learners' motivations for taking MOOCs also include an increase in personal development and the ability to take advantage of free resources within each course (Dillahunt, Ng, Fiesta, & Wang, 2016). In the same study however, some students noted the value of MOOCs while also demonstrating reservations regarding employers' attitudes, believing hiring managers will have little respect for the value of MOOCs when compared to traditional degrees (Dillahunt et al, 2016).

Despite many advantages, students do not perceive MOOCs as easy. A condensed timeframe combined with the lack of interaction with faculty members contribute to MOOCs academically challenging structure (North et al, 2014). Connectivist learning approaches in MOOCs also require students to play a pivotal role in the creation and dissemination of course materials, and the need to interact with peers for grading and evaluative measures. While necessary due to enrollment size, the consequences of required peer engagement often result in plagiarism, unfair variations in expertise, and privacy concerns (Head, 2013; Young, 2012). Correspondingly, qualitative data collected by Cole and Timmerman (2015) exemplify students' concerns for communication within MOOCs by quoting individuals' negative perceptions of overall interaction and peer support, in addition to the lack of personal contact with the instructor. In contrast, other research indicates that many students appreciate the value in peer-to-peer learning, citing advantages such as a mutual understanding of course expectations, having similar interests and knowledge sets, and an increased sense of community within the course (Romero, 2016).

Employer Perceptions of Online Education and MOOCs

Regardless of faculty and student perceptions, employers will likely be the real gauge for MOOCs' effectiveness. Both in hiring decisions and in career advancement opportunities that come with non-traditional means of learning, employers' and organizational managers' attitudes toward MOOCs will shape their future more than other groups. As of now, the literature shows mixed feelings. Though not specific to MOOC coursework, a relevant study found that recruiters often make employment inferences and potential job-performance judgments based mainly on the academic qualifications listed on an applicant's resume (Stafford, 2009). Earlier results also suggest that employers view online learning credentials with more caution and skepticism than traditional degrees; questioning both the quality and consistency of online instruction (Adams & DeFleur, 2006; D. Carnevale, 2007). Danzinger (2007) further reported human resource managers' educational preferences, concluding that they had significant hiring preferences for traditionally educated job applicants over job seekers with online degrees. Yet in a subsequent study, Tabatabaei and Gardiner (2012) contrastingly found that hiring managers' regard for applicants' mode of education was not significant when comparing online with face-to-face instruction.

Specific literature regarding employers' perceptions of MOOCs is limited at present. Indeed, only 31% of nearly 400 employers surveyed had even heard about MOOCs at the time of a 2014 study (Radford, Robles, Cataylo, Horn, Thornton, & Whitfield, 2014). However, several studies have advanced the line of research on employer perceptions of online degrees that, at least stylistically, are similar in structure to MOOCs. Using survey data similar to this dissertation, Thompson (2009) found that hiring managers exhibited a strong preference for job applicants with traditional degrees over those with online degrees, reporting that only 50% of

employers at the time were willing to consider applicants with fully online degrees.

Subsequently, Kinneer (2013) likewise concluded that significant differences exist with regard to employers' perceptions of online versus face-to-face instruction. Implied in the findings was the contention that employers value the incidental learning and experiences in traditionally instructed courses, and that this perception is less prevalent in online platforms. However, employers with more online educational experience personally have fewer concerns over distance education credentials and more favorable attitudes toward applicants citing online degrees (Kinneer, 2013).

Confined to hiring managers in North Carolina, qualitative findings from Radford et al (2014) anecdotally support MOOC-related opportunities for staff training, professional development, and individually-tailored learning opportunities. Additionally, for positions requiring a high degree of technical training such as software engineers and computer scientists, MOOCs were appealing educational options. When discussing specific MOOC-related advantages and disadvantages perceived, hiring managers were optimistic about MOOCs' low cost mostly, citing budget issues as a particular cause for concern when training needs arise, as well as MOOCs attachment to highly-regarded universities. Disadvantages perceived in MOOCs were the online delivery format, which does not allow for hands-on training, and the inability to teach soft skills such as leadership and customer management.

When evaluating employment candidates, hiring managers consider myriad factors that ultimately lead to a job offer. Employers use individual elements including previous work experience, interaction and communication skills, completion of educational degrees, reference checks, and to a lesser degree, ability tests when considering prospective employees (Thompson, 2009). Research conducted by Radford et al. (2014) reported that employers would be

challenged when using MOOCs for recruiting purposes, due to their inability to account for a broad range of skills needed in most positions. Hart Research Associates (2015) further exemplify employers' preferences for well-rounded candidates. Individuals who have experience with liberal arts, possess interpersonal skills, are adept at problem solving, and have technically-specific skills are those in demand and who achieve long-term success. Specifically, the ability to communicate orally, at 85%, was valued as the most important trait by employers seeking to fill a position (Hart Research Associates, 2015). Although many recognize MOOCs for their brevity and skill-specific curricula, findings from Hart Research Associates imply that the additional breadth and depth of knowledge gained in a residential liberal arts university is more attractive to potential employers.

Literature on Connectivism Theory

Rooted in cognitivist learning, George Siemens advanced a model to reflect changes in 21st century education and technology and coined the term connectivism. What sets connectivism apart from traditional cognition theory is the proposal that learning is more than the attainment of information; rather, knowledge builds across social connections and emerges through individuals' experiential connections with others (Siemens, 2005). Epistemologically, connectivism views the learning process as neither linear nor flat, but fluid and distributed among all individuals and elements within a learning environment (Downes, 2006; Siemens, 2008). Using online technologies and the Internet in this regard, MOOCs are catalysts for increased personal connections – or nodes – that foster knowledge distribution.

Clow (2013) described the connectivist-based phenomenon in MOOCs as a funnel of participation. Metaphorically, the 'funnel' represents stages through which MOOC students must progress before they can make significant educational gains. Beginning with their initial

awareness, the funnel demonstrates how increases in students' activity levels filter down to tangible learning outcomes, while also illustrating that only a small percentage of MOOC participants reach the final stage of the funnel (Clow, 2013). Noting the need for active participation, Fini (2009) detailed the technological media students must commonly utilize for in-MOOC communication, which include learning-management system forums, Facebook, LinkedIn, Twitter, Second Life, blogs, RSS feeds, and more. Granted, MOOCs permit educational attainment for virtually anyone with Internet accessibility, yet the digital divide represented by the inequality of individuals' technological prowess becomes evident when considering the level of technical knowledge required to depart from the funnel of participation with tangible knowledge.

Within the connectivist learning model, students must share their own knowledge and resources with other MOOC participants. Learners, not instructors, are at the heart of the pedagogical system and active participation without passivity is required (Pomerol et al, 2015). Fischer (2014) cited evidence contrary to the efficacy of this conceptual framework, however, noting that many students place higher value on instructor-provided materials and believe resources created by their peers are often excessive and irrelevant. These issues further question the soundness of connectivism theory's pedagogical framework and contradict students' ability to learn from one another as effectively as traditional teaching practices. Relatedly, there is some question of whether distance education pedagogies will ever be able to compete with the richness of interaction available in traditional, face-to-face classrooms (Bradner, & Mark, 2002; Olson & Olson, 2001). This study, however, attempts neither to theoretically endorse nor invalidate connectivism learning models. Rather, the focus is on hiring managers' perceptions of

the connectivist-based learner, insofar as employers are willing to offer job opportunities to individuals with peer-to-peer instruction at the heart of their learning.

Literature on Human Capital Theory

In his recent book *The End of College*, author Kevin Carey (2015) reported that most students stated that their reason for attending college was simply to get a better job. He outlined the notion that, at least currently, individuals believe they need to attend college and earn credentials that represent their educational attainment, which in turn leads to proportionally more individual employment opportunities and increased wealth. This concept, similarly described by economist Theodore Schultz (1961), is the basis for human capital theory. Human capital theory postulates that investments in education, skill-attainment, and knowledge lead to improvements in individuals' productivity, growth, and overall attractiveness to potential employers (Bills, 2003; Douglass, 1996). Organizations also benefit from individuals' investment in human capital. Employers view workers with increased knowledge as more productive in the workplace and their competence leads to increased on-the-job responsibilities (Becker, 1993). Figure 3 represents the theoretical flow chart for investments in human capital, illustrating how advancements in education result in greater performance (Swanson & Holton, 2001). However, Carey (2015) argued that the meritocracy implied in human capital theory is disadvantaging economically oppressed individuals, citing the rising costs of education at all levels. His optimism for MOOCs is apparent though, as he speaks to the legitimacy of human capital theory in today's labor-force while envisioning future generations' investment in learning capital as being much less than today.

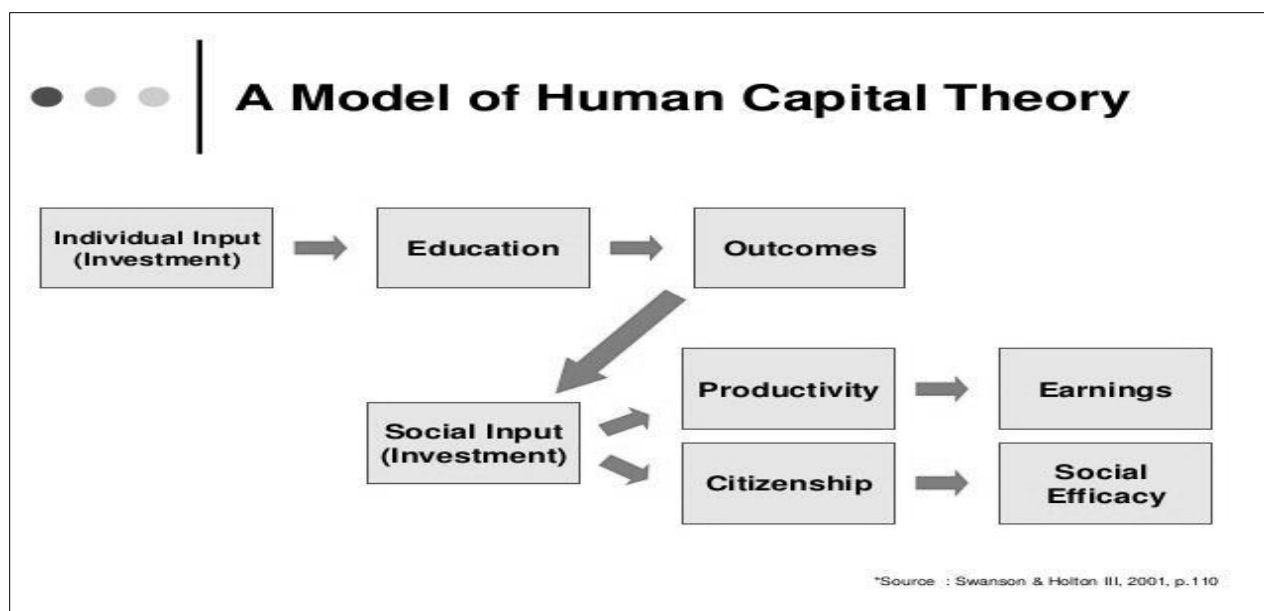


Figure 3. A model of human capital theory.

Apart from advantages for individual learners and their respective employers, human capital theory also posits that the economic vitality of a geographic region also depends on the educational attainment of its citizens. While determining the degree of regional monetary growth credited specifically to education is relatively inexact, increased education considerably enhances analysis of factors such as the presence of innovative businesses, per capita spending on goods and services, and localized working wages (Rothwell, 2015). Moreover, analysis of national consumer expenditure surveys directly evidences that the measures of consumption increase most often in more highly educated individuals, and that there are corresponding state and local benefits including growth in taxable income, higher property values, and attraction of new area businesses (Bureau of Labor Statistics, 2014). Specifically based on lifetime averages, Rothwell (2015) reported that bachelor's degree holders contribute \$278,000 more than high school graduates to their local economy.

Adhering to assertions of human capital theory, completing MOOCs would hypothetically indicate that an individual is more likely to obtain employment and earn more

money than is an individual with scarcer educational credentials. However, as Walters (2004) ominously suggested in relation to MOOCs, employers' reliance on credentialism remains a dominant hiring trend, thereby limiting the attainment of human capital if not reflected by a degree. In this manner, the present study seeks to expand the theory's focus by introducing MOOCs as a novel mode of advancing one's human capital.

Literature on Credentialism Theory

Credentialism theory with respect to education is similar to human capital theory in many regards and further advances higher-education's significance among job-seekers. The credentialist thesis holds that the formal training and credentials that educational institutions award and symbolize by degrees act as the principal means by which employers make qualification decisions for occupational positions (Gale, 2008). A similar credentialist position is that "formal schooling leads to socio-economic success not because of the superior skills and knowledge of the more highly educated, but rather because of the ability of the highly educated to control access to elite positions" (Bills, 2003, p. 452). In response to credentialist assertions, Jeffrey Selingo (2013), editor of the *Chronicle of Higher Education*, argued that MOOCs will continue to grow in popularity while undermining traditional degree credits, citing "the great credential race" (p. 3) as a driving factor behind a broken higher education system that has turned universities into big businesses.

When considering the economic and financial value of higher education credentials, evidence elucidates that the average increase in median lifetime earnings of a college graduate when compared to a high school graduate is nearly \$1 million (A. P. Carnevale, Rose, & Cheah, 2011). The findings overtly indicate that regardless of occupation, rank, or positional similarity, increased education equates to increased earnings. However, when applied to the theory of

credentialism, these findings do not simply consider the amount of education, but also the level of degree earned. Data used by A. P. Carnevale et al. (2011) to determine wage disparity differentiated educational attainment solely on high school, associate's, bachelor's, master's, and doctoral degree credentials without considering coursework – such as MOOCs – that increase an individual's education level but do not result in a degree.

Support of credentialism theory cites the inevitable need for employers to judge prospective employees' productivity and performance potential rationally, accomplishing this objective by a review of their educational degrees (Gale, 2008). From this perspective, the de-schooling movement MOOCs present would require employers to consider job-applicants' skills and practical experience more fully with much less emphasis on formal degrees. Without the regulations and academic standards assumed in traditional college degrees, employers are skeptical that MOOCs can convey individuals' qualifications and skills in similar fashion to traditional collegiate degrees (Weber, 2015).

Randall Collins' (1979) work on the "credential society" remains a hallmark piece of literature discussing the theory. While he maintained the value of a credential-conferred education in the job market, Collins also held the specific belief that formal educational credentials had, at best, a weak connection to on-the-job skills (Collins, 1979). Rather than empirical evidence correlating college degrees and job-skills, much of the literature on credentialism refers to relationships between educational advancements and individual wages. Berg (1970) had previously argued this notion by pointing out the lack of meaningful ways to characterize skill demands of a position and worker productivity with educational credentials. Because credentialism explains hiring decisions in this fashion, a key component of this study

reflects the ability to garner tangible rewards and employment offers for advancing one's job skills while also foregoing credentialed degree evidence.

Chapter Summary

Although MOOCs still have challenges to overcome, current research and growth projections position them to be disruptive and transformative forces on higher education for the foreseeable future. Changes in the labor market are occurring faster than higher education's response to them, and MOOCs have the ability to fill a very real educational void. Moreover, evidence at the individual, regional, and national level shows tangible benefits and a link between post-secondary educational attainment and enriched standards of living.

Illustrated in Figure 4, MOOCs are uniquely positioned to affect not only educational institutions and students, but also employers and the larger workforce, alike. Industry relies on colleges and universities to train workers capable of problem-solving and contributing to present-day issues and trends in their respective sectors. To complete the feedback loop, employers also influence academia insofar as they determine what majors, skills, abilities, and certifications are in demand and able to garner employment opportunities upon students' graduation. The model in Figure 4 show that all stakeholder groups have symbiotic relationships with one another; with MOOCs strategically situated to either disrupt or further integrate them all.

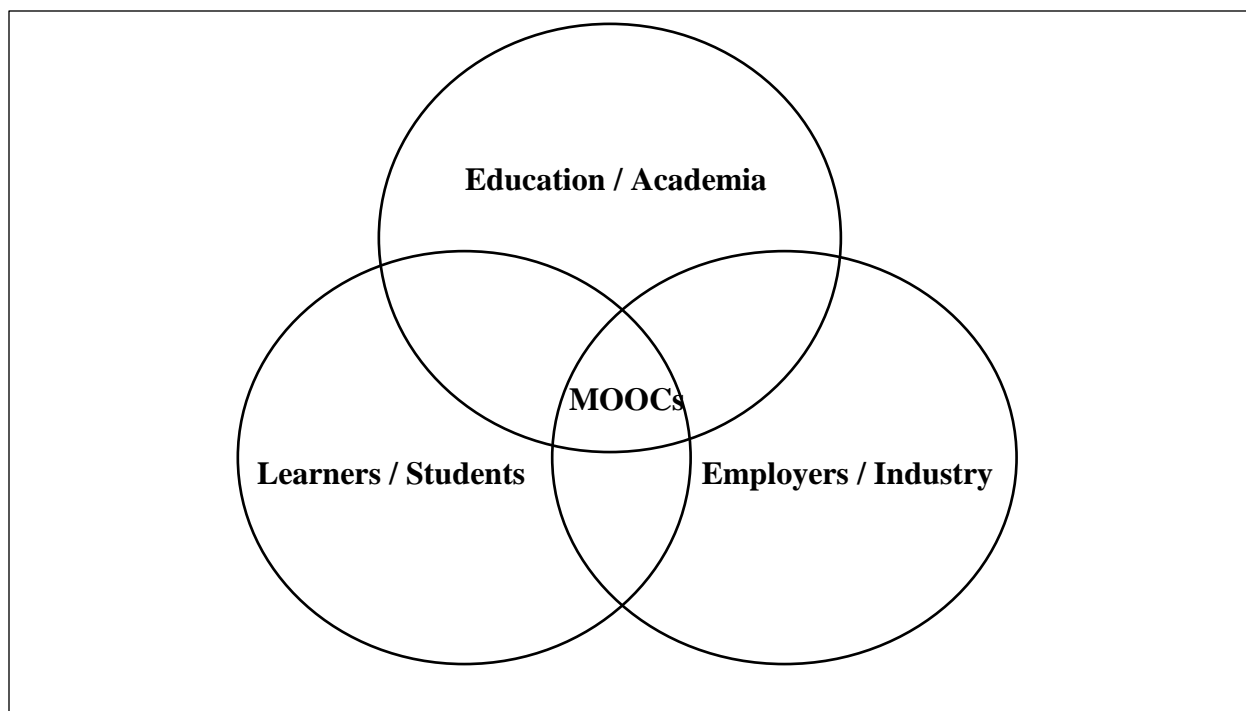


Figure 4. Venn diagram of MOOCs' positioning within stakeholder groups.

Key stakeholder groups including students, faculty, and higher education institutions have mixed but increasingly optimistic attitudes about the legitimacy of MOOCs and their staying power in the postsecondary educational landscape. In further support, theoretical frameworks such as human capital theory and connectivism explain the benefits of connected learning via MOOCs and the economic advantages of advancing one's knowledge through higher education. Likewise, credentialism predicts that individuals with higher education credentials receive preferential hiring and career-advancement treatment. However, credentialism and human capital theory diverge when considering the implications of MOOCs due to the increase in education they provide while at the same time being hindered by the lack of degree credentials they deliver. Finally, due to the novelty of the movement, employer attitudes toward MOOCs are limited. Confined mainly to perceptions of online education, employers have not weighed in on the pragmatic implications of the fundamental educational

shift MOOCs present. This dismissal lays the groundwork for the research in this study, which specifically addresses the current gap. Indeed, only when researchers study and understand hiring managers' perceptions of MOOCs will MOOCs gain either the critical endorsement or denouncement that will ultimately shape their future.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study is to examine employers' perceptions of MOOCs as compared to traditional degree-conferred education when making hiring decisions. This chapter provides justification for the quantitative research design employed and describes the overall methodology and research procedures used for data collection. Further, this chapter discusses the measures taken to ensure the validity and reliability of the research while explaining the sample and population of the study as they pertain to the recruitment of subjects and data collection. Finally, the chapter concludes by addressing ethical considerations and summarizing the chapter contents.

Research Design and Rationale

In order to address the main research questions, this study employed a cross sectional, quantitative, non-experimental correlational design. A quantitative approach was most appropriate for this study. Adhering to the scientific method, a quantitative design is preferable in social science research when making behavioral predictions while also allowing for the analysis of responses to evidence statistically significant differences or relationships within the data (Hanushek & Jackson, 2013; Novak & Buddenbaum, 2001). Within this approach, the main data collection instrument was an online-administered survey. Surveys are the most frequently used method of data collection in applied communication research (Novak & Buddenbaum, 2001). According to Reinard (2001), a survey is an appropriate empirical way to analyze and discover a phenomenon's descriptive characteristics. Additionally, Fowler (2009) pointed out that surveys have the distinct advantage of identifying attributes of a larger population from

individuals in a small sample. Lastly, two related examinations studying employer perceptions of online versus traditional degrees employed similar methodological designs and further evidenced the value of, and justification for, this approach (Kinneer, 2013; Thompson, 2009).

Population and Sample

The population for this study is human resource professionals. According to the Bureau of Labor Statistics, there are approximately 122,500 human resource managers employed in the United States (Bureau of Labor Statistics, 2016). Using a non-probability purposive approach, the representative sample for this study included hiring managers in Pennsylvania, the Mid-Atlantic region, and surrounding states. This sampling technique is most appropriate due to subjects' ability to display the characteristics present in the larger population well (Novak & Buddenbaum, 2001). For the purposes of this study, hiring managers are defined as either members of the Society for Human Resource Management (SHRM), or similar individuals in management positions in which they are active in any aspect of recruitment, job-placement, hiring, screening, and/or interviewing employment candidates. Prominently displayed on their organizational website, information shows that:

Founded in 1948, the Society for Human Resource Management (SHRM) is the world's largest HR membership organization devoted to human resource management.

Representing more than 275,000 members in over 160 countries, the Society is the leading provider of resources to serve the needs of HR professionals and advance the professional practice of human resource management. (SHRM, 2016)

Individual professional members of SHRM have at least three years of human resource management experience and/or certification by the Human Resource Certification Institute. Membership also extends to HR faculty members at the associate professor level or above, as

well as full-time consultants with at least three years' experience in counseling or advising clients on matters relating to the human resources profession. The unit of analysis for this study was the individual hiring manager and individuals who were not currently in HR positions involving recruitment, screening, or hiring were omitted.

Data Collection Procedures

An electronic survey was used to collect data for this study and was developed by the primary researcher. The online survey was administered using Qualtrics software. There were no identifiable criteria on the instrument that enabled the researcher to identify the individuals who completed the survey, and completion of the survey was voluntary.

Recruitment of Participants

Utilizing a purposive sample, individuals were primarily selected based on their membership and affiliation with the Society for Human Resource Management group. Through the contact information publicly listed on SHRM webpages, each chapter President's email account was obtained. Initially, the researcher sent chapter presidents of 11 regional SHRM groups representing Pennsylvania an email providing background information on the study and a request to forward the survey instrument to their organization's members. The chapter presidents then sent each individual participant an email which contained informed consent information and a link to the online Qualtrics survey. Using a snowball sampling method, those who completed the survey in full also had the opportunity to forward the link to other human resource personnel and or hiring managers at their respective organizations. Snowball sampling is another purposive approach that allows researchers to locate others with similar experiences or perspectives in the same network (Novak & Buddenbaum, 2001). The last item on the survey instrument thanked participants for their time and once again provided the researcher's contact

information should the participants have any questions. Based on the membership base for each SHRM chapter contacted, approximately 5,000 individuals were eligible to receive the email invitation. However, due to the added snowball design method, the specific number of survey recipients and the corresponding response rate remain unknown.

Data Collection Instrument

The data collection instrument was an online self-administered survey consisting of 30 items. The researcher developed the survey and created questions in order to reflect and answer the primary research questions as comprehensively as possible. A review of the literature and two similar investigations conducted by Dr. James Kinneer and Dr. Leisa Dione Thompson also informed question items in the survey (See Appendix E).

Online surveys are beneficial for collecting data from participants in large geographic areas (van Selm & Jankowski, 2006). Beginning with a brief paragraph operationally defining MOOCs, the survey used closed-end and fixed-choice questions that addressed concepts related to demographic information about each participant such as his or her industry, academic background, size of organization, and prior experience with MOOCs. Five-point Likert-type questions addressed participants' attitudinal perceptions toward traditional college degrees, attitudes toward non-degree job candidates, and overall perceptions of the value of MOOCs as they relate to promotion, hiring, and job-skills. Finally, two open-ended questions allowed individuals to comment on any perceived advantages or disadvantages associated with MOOCs when compared to traditional college degree options.

Survey Procedure

Utilizing a purposive sampling approach, the Qualtrics-hosted survey was sent via email to hiring managers and recruiters with a focus on the sub-population of Society for Human

Resource Management (SHRM) members. Due to the confidentiality of members' email accounts, the researcher emailed each SHRM chapter president who then forwarded the survey link to his or her respective membership base. Individuals that received the email were provided with informed consent information and a brief overview of the study. Those who chose to continue received a prompt to click the embedded link in the email that directed them to the Qualtrics survey. Finally, in order to reach individuals who fit the target demographic for this study but who may not be affiliated with SHRM, the final item of the survey asked participants to forward the email and survey link to other associates either within or outside their organizations who also have experience in hiring and recruiting.

All recipients receiving the survey provided informed consent prior to completing the questionnaire, and had the ability to opt out of or discontinue the survey at any time. Apart from the need for online (Internet) access and a working email account for the participants, there were no specific equipment and/or material resources needed in order to participate in this research study. The survey link was active for a period of 28 days, after which point all Qualtrics data were exported into an SPSS (Statistical Package for Social Sciences) file for further data analysis.

Reliability and Validity Measures

Quantitative research employing a survey design is reliable due to the absence of researcher bias, control for data collection procedures, generalizability of findings, and the ability for replication of the study due to systemic procedures (Creswell, 2014). As a form of criterion reliability, approximately 20% of the survey questions in this study were adapted from similar research conducted by Drs. James Kinneer and Leisa Dione Thompson, each of whom provided written permission to modify their respective survey instruments.

An expert-jury approach was used to validate the survey instrument for this study. Expert jury validation consists of “having a group of experts in the subject matter examine a measurement device to judge its merit” (Reinard, 2001, p. 435). From December 2015 through January 2016, the researcher met and corresponded with six members of the Pennsylvania Workforce Investment Board along with the Director of Workforce Initiatives in the state of Pennsylvania – who is also the current PASSHE (Pennsylvania State System of Higher Education) liaison between higher education and business/industry organizations in the state. During this time, the survey instrument was modified to reflect and answer the main research questions for this study as effectively as possible. Due to members’ academic research backgrounds and current investment in the workforce needs in the region, this group was able to inform the overall makeup and structure of the survey instrument for this research effectively.

Ethical Considerations

Indiana University of Pennsylvania’s Institutional Review Board (IRB) approved the procedures and data collection methods of this study prior to the recruitment and contact of any individuals. Each participant was over 18 years of age and provided receipt and acceptance of informed consent information prior to starting the survey. Individuals were instructed that participation in this study was voluntary and they were able to discontinue and exit the survey at any point. No at-risk groups or individuals were targeted as part of this study. No information was withheld during this study and participants could request debriefing information from the researcher after completion of the survey. Lastly, anonymity of each participant was maintained throughout the study. Neither individual names nor email contact information from any participant were collected as part of this research. All data collected and analyzed were saved to

a secure location on the researcher's Indiana University of Pennsylvania hard drive throughout the entirety of the study.

Chapter Summary

Exemplifying the positivist assumptions of quantitative-based research, this chapter has described all major aspects of the research design used to examine employers' perceptions of MOOCs compared to traditional degree-conferred forms of higher education when making hiring decisions. Referencing existing research, it has provided a justification for the overall quantitative methodology and choice of data collection instrument. This chapter has also described the procedural steps involved in the recruitment of participants and their receipt of information. While minimal, concerns for reliability and validity were addressed and ethical considerations were duly noted. The following chapter presents the results of the data collected and offers empirical analysis and explication of significance through statistical testing.

CHAPTER IV

FINDINGS

Introduction

MOOCs represent a fundamental systemic variation from traditional forms of higher education, partly in response to an exponentially changing global marketplace. How recent changes in higher education, specifically MOOCs, will affect the labor force remains unknown. Therefore, this study explores hiring managers' perceptions of MOOCs as post-secondary educational credentials for employment and career advancement in relation to traditional degree-conferring college and university programs. This chapter describes and analyzes the results of a thirty-question online survey (see Appendix E) and reports findings related to employers' attitudes toward higher education, employees' communication needs, and the potential for MOOCs in varying organizational sectors. Focusing on demographic characteristics from the survey respondents, this chapter descriptively and statistically examines the perceived effectiveness of MOOCs when compared with traditional forms of post-secondary education. In addition to quantitative analysis, respondents' comments to two open-ended questions regarding MOOCs advantages and/or disadvantages are also presented where appropriate, insofar as they support and extend the explanatory value of the statistical outcomes.

The Participants

During a four-week period between March 8, 2016 and April 5, 2016, 226 individuals responded to an email requesting their participation in this study by clicking on a Qualtrics link embedded in the online message. Surveys that were not fully completed or individuals indicating a lack of involvement in hiring, recruiting, and/or interviewing were omitted from analysis. Target respondents completing the online survey in its entirety totaled 202, indicating

an 89% completion rate. The purposive sampling approach used in this research primarily focused on members of the Society for Human Resource Management who, by membership, have extensive experience in recruiting, interviewing, and hiring practices.

Profile of the Sample

To avoid individuals that do not currently fit into this study's target population, only active hiring managers, employers, and recruiters are represented. Tables 1 and 2 summarize the demographic characteristics and organizational profile of this study's respondents.

Table 1

Demographic Profile of Respondents

Variable	Responses (n)	Percentage
<u>Gender</u>		
Male	66	33%
Female	136	67%
<u>Age</u>		
18 – 25	22	11%
26 – 35	45	22%
36 – 45	46	23%
46 – 55	54	27%
56 or older	35	17%
<u>Highest Level of Education</u>		
High School Diploma	4	2%
Some College	12	6%
Associate's Degree	5	3%
Bachelor's Degree	103	51%
Master's Degree	71	35%
Advanced or Doctoral Degree	7	4%
<u>Type of Education Received</u>		
All face-to-face instruction	107	53%
Hybrid, but mostly face-to-face	63	31%
Hybrid, but mostly online	18	9%
All online instruction	14	7%

Analysis of the respondents' demographic makeup show the sample to be predominantly female, 67% (n=136) compared to just 33% (n=66) male. The sample included a well-proportioned distribution across each of the five age categories. Slightly more than half of the sample, 56% (n=113) were 45 years of age or younger, and 44% (n=89) were older than 46. Ninety percent (n=181) held a bachelor's degree or greater, and nearly half of the sample (n=95) indicated experience taking some form of online instruction. However, most of the sample (n=107) had completed all of their post-secondary education in a traditional face-to-face classroom setting.

Additionally illustrated in Table 2, 57% percent of the sample had 10 or more years' worth of HR experience (n=114). Twenty-seven percent (n=55) had worked in human resources between 3 and 10 years, and 16% (n=33) indicated having 2 or fewer years of experience in hiring, recruiting, interviewing, and/or screening job candidates. The overall distribution for the organizational size relating to each respondents' workforce count was relatively even, with approximately one-quarter of the respondents (n=51) representing organizations with greater than 1000 employees. There was an equal distribution, 50% (n=101), for respondents representing organizations having fewer than 250 employees, and those having 250 or more employees. Regarding the industry sector with which each respondent was associated, 80% (n=162) fell into either goods manufacturing, business and retail services, or education and healthcare services. The remaining 20% of respondents (n=40) indicated working in either food production, medical services, building and civil engineering, energy and oil extraction, information technology, and/or transportation and logistics.

Table 2

Organizational Profile of Respondents

Variable	Responses (n)	Percentage
<u>HR Experience</u>		
2 years or less	33	16%
3 – 5 years	16	8%
6 – 10 years	39	19%
More than 10 years	114	57%
<u>Workforce Size of Organization</u>		
Fewer than 50 employees	30	15%
Between 50 – 99	33	16%
Between 100 – 249	38	19%
Between 250 – 499	28	14%
Between 500 – 999	22	11%
More than 1000 employees	51	25%
<u>Industry Sector</u>		
Advanced goods / manufacturing	44	22%
Agriculture / food production	8	4%
Bio-medical / scientific services	5	3%
Building / civil engineering	6	3%
Business / finance / retail services	65	32%
Education / healthcare services	53	26%
Energy / oil and gas extraction	5	3%
Info. technology / communication	12	6%
Transportation and logistics	4	2%

Overall, the 202 individuals included in the sample represent a wide range of human resource professionals across many industries, various age and experience groups, and differing educational and instructional backgrounds.

Statistical Data Analysis Techniques

The IBM SPSS version 23 software package was used for the majority of statistical data analysis in this section. Focusing on the first research question – hiring managers’ attitudes toward MOOCs – Table 3 descriptively represents individuals’ answers to attitudinal-based

Likert-type questions pertaining to MOOCs. For each of the following 16 statements, respondents indicated their agreement level by choosing 1 – 5; with 5 representing ‘strongly agree,’ 4 representing ‘agree,’ 3 representing neutral (neither agree nor disagree), 2 representing ‘disagree,’ and 1 representing ‘strongly disagree.’

Table 3

Descriptive Statistics for Likert Scale Questions

Statement	Responses (n)	M	SD
12. I believe that MOOCs could prepare an individual for employment in my field of occupation as well as a traditional college degree program.	202	3.15	1.083
13. With few exceptions, the completion of a college or university degree is a minimum requirement for most positions at my organization.	202	3.42*	1.322
14. Academic requirements are flexible in my organization, and each hiring manager uses their own judgment as to an applicant’s educational background.	202	3.13	1.175
15. At my organization employees are encouraged to continue their education throughout their employment by completing traditional college courses for credits.	202	3.51*	1.098
16. For current employees at my organization, I believe MOOCs would be a better way to continue their education than traditional college degree programs.	202	3.16*	.951
17. When reviewing an application, my organization generally considers the overall college degree, rather than specific courses that were completed.	202	3.75*	1.011
18. When considering a job applicant, the need for communication and social skills, such as the ability to work with others and speak and write well is an important consideration.	202	4.65*	.615
19. I believe that traditional college courses would develop students’ communication, collaboration, and teamwork skills better than MOOCs.	202	3.78*	.964
20. My organization prefers to hire applicants who have college degree credentials.	202	3.69*	1.153
21. My organization would consider hiring applicants who have non-degree training certifications, such as certificates of completed MOOCs, as opposed to college degrees.	202	3.17*	1.072

22. I believe that college or university degrees make it easier for my organization to evaluate an applicants' ability to perform a job.	202	3.44*	.956
23. The overall evaluation of a job-applicant without a traditional college degree requires more time for background and reference checks than applicants with degrees.	202	2.94	1.047
24. I believe that an applicant's past work history is more important than post-secondary education with regard to employment consideration.	202	3.74*	.795
25. At my organization the salary / pay scale in place at the time of hire is based on education and/or degree credentials (assuming a higher degree equates to a higher pay scale).	202	3.19*	1.081
26. At my organization there is a salary / pay scale in place at the time of hire that is based on non-traditional forms of education such as MOOCs (assuming more MOOCs completed equates to a higher pay scale).	202	2.13*	.964
27. At my organization individuals with traditional college credentials tend to be promoted faster than individuals with other forms of post-secondary education such as MOOCs.	202	3.03	.972

Note. * Indicates significance at $p < .05$ level.

Results for Research Question 1

RQ1: What are hiring managers' attitudes toward MOOCs as a form of postsecondary education?

Research Question One was broadly addressed by participants' responses to 16 Likert-style questions where respondents conveyed the extent to which they agreed, disagreed, or remained neutral using a 1-5 scale. Calculating the mean and standard deviation to each statement, Table 3 illustrates the central tendency of respondents' agreement levels. On the whole, 40% (n=80) of hiring managers either agreed or strongly agreed with question number 12 that MOOCs could prepare an individual for employment as well as a traditional college education, while 27% (n=55) either disagreed or strongly disagreed with the statement. Employers also tended to agree with statement number 16 – with 31% (n=68) in agreement and

only 17% (n=38) disagreeing – that MOOCs would be a better way for current employees to continue their education compared to traditional degree programs. However, item number 20 illustrates that the majority of hiring managers still prefer to employ applicants with traditional college degrees, with 58% (n=117) in agreement and only 16% (n=33) disagreeing with the statement. In further support of credentialism-based practices, items number 17 and 22 signify that employers generally prefer applicants with college degrees, believing that the lack of degree credentials would require more time and effort in vetting a potential new-hire. Mean ratings additionally show that hiring managers place a large emphasis on job candidates' ability to communicate well ($M=4.65$) and the majority of respondents believe that traditional college or university programs would develop students' communication skills better than MOOCs ($M=3.78$). Based on resulting calculations of a one-sample Wilcoxon Signed Rank Test, asterisks noted in Table 3 also indicate statements with values that are significantly different from the mean-expected value of 3 at the 95% confidence interval.

A principal components factor analysis (PCA) was run on the 16 Likert-style questions in this study's survey. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was .802, which is 'meritorious' according to Kaiser (1974), and Bartlett's Test of Sphericity was statistically significant at $p < .001$, indicating the data were factorable. Table 4 represents the correlation matrix that was computed for all 16 Likert-style questions; items 12-27 in the survey.

Table 4

Correlation Matrix

Item #	Item 12	Item 13	Item 14	Item 15	Item 16	Item 17	Item 18	Item 19	Item 20	Item 21	Item 22	Item 23	Item 24	Item 25	Item 26	Item 27
12	1.000	-.117	.329	.036	.407	-.298	-.063	-.378	-.250	.454	-.352	-.172	.265	-.028	.315	-.217
13	-.117	1.000	-.334	.345	-.142	.175	.116	.109	.651*	-.294	.349	.232	-.193	.387	.031	.273
14	.329	-.334	1.000	-.211	.372	-.114	.010	-.039	-.388	.578*	-.230	-.288	.304	-.204	.231	-.187
15	.036	.345	-.211	1.000	-.118	.195	.200	.014	.409	-.181	.145	.150	-.171	.187	.093	.382
16	.407	-.142	.372	-.118	1.000	-.144	.065	-.183	-.235	.426	-.271	-.074	.294	-.011	.238	-.140
17	-.298	.175	-.114	.195	-.144	1.000	.243	.173	.326	-.208	.185	.041	-.087	.047	-.069	.185
18	-.063	.116	.010	.200	.065	.243	1.000	.253	.265	.078	.146	.034	.136	.048	-.158	.159
19	-.378	.109	-.039	.014	-.183	.173	.253	1.000	.322	-.227	.350	.119	.086	.055	-.285	.267
20	-.250	.651*	-.388	.409	-.235	.326	.265	.322	1.000	-.435	.522*	.288	-.155	.426	-.098	.355
21	.454	-.294	.578*	-.181	.426	-.208	.078	-.227	-.435	1.000	-.429	-.269	.363	-.252	.258	-.258
22	-.352	.349	-.230	.145	-.271	.185	.146	.350	.522*	-.429	1.000	.312	-.266	.285	-.170	.312
23	-.172	.232	-.288	.150	-.074	.041	.034	.119	.288	-.269	.312	1.000	-.188	.261	.008	.271
24	.265	-.193	.304	-.171	.294	-.087	.136	.086	-.155	.363	-.266	-.188	1.000	-.162	.064	-.080
25	-.028	.387	-.204	.187	-.011	.047	.048	.055	.426	-.252	.285	.261	-.162	1.000	.048	.340
26	.315	.031	.231	.093	.238	-.069	-.158	-.285	-.098	.258	-.170	.008	.064	.048	1.000	.022
27	-.217	.273	-.187	.382	-.140	.185	.159	.267	.355	-.258	.312	.271	-.080	.340	.022	1.000

Note. According to Losh (2004), correlation values from .51 to .75 are “strong” and are notated by an asterisk (*). Values from .26 to .50 are considered “moderate.”

Survey items 13 and 20 represent the strongest positive correlation ($r = .651$, COD = 42%). Unsurprisingly, hiring managers working for organizations that have specified educational degree requirements for job openings prefer to hire applicants with degree credentials. Similarly represented in items 14 and 21, a positive correlation exists ($r = .578$, COD = 33%) between hiring managers’ autonomy in evaluating applicants’ educational backgrounds, and organizations that would consider non-degree training such as MOOCs in place of traditional degrees. Ease of evaluating job candidates based on education was also strongly correlated to organizations that prefer to hire traditionally-educated job applicants, represented in survey items 20 and 22 ($r = .522$, COD = 27%). Moderate but noteworthy

correlations also exist with MOOCs' perceived worth – as represented in survey item 12 – and their value for current employees' continuing education ($r = .407$), and a negative association between MOOCs' value and organizations' need for employees to have good communication skills ($r = -.378$).

Using the eigenvalue-one criterion suggested by Kaiser (1960), four distinct factors with values greater than one were retained which explain 56% of the cumulative variance in the data set. Communalities illustrated in Table 5 represent Component 1, the need for academic degrees and/or credentials; Component 2, current employees' training needs; Component 3, communication skills required; and Component 4, job-candidate screening methods.

Table 5

Component Matrix

Component Factors	Component Factors			
	1	2	3	4
Eigenvalues and % of Variance Explained	4.418 27.6%	1.879 11.7%	1.635 10.2%	1.096 6.9%
Survey item 12	-.560	.530	-.153	-.018
Survey item 13	.611	.407	-.114	-.060
Survey item 14	-.618	.194	.344	.124
Survey item 15	.427	.482	-.048	-.462
Survey item 16	-.495	.468	.148	.230
Survey item 17	.394	.007	.341	-.508
Survey item 18	.209	.239	.671	-.182
Survey item 19	.420	-.196	.608	.310
Survey item 20	.780	.305	.121	-.037
Survey item 21	-.722	.297	.240	-.010
Survey item 22	.677	-.021	.106	.282
Survey item 23	.457	.160	-.183	.430
Survey item 24	-.417	.190	.514	.171
Survey item 25	.462	.437	-.185	.339
Survey item 26	-.270	.558	-.295	-.053
Survey item 27	.537	.318	.133	.106

While collapsed into four factors, exemplary remarks for all dimensions are supported by individuals' survey responses to open-ended questions (available fully in appendix F) that include statements such as: Component 1, "The authority that a degree provides over a course certification is a very big factor in consideration." Component 2, "MOOCs can provide knowledge in specific content that could enhance the employee's job performance." Component 3, "Perhaps MOOCs would create a lack of interpersonal communication skills due to a more technical environment." Component 4, "I am not sure there are currently standards [for MOOCs] that would ensure the employer of the quality of the education the employee received."

Results for Hypothesis H1₁

Hiring managers will perceive collegiate degree-holder job applicants more favorably than job applicants with MOOCs coursework.

Survey item 11 specifically addresses Hypothesis 1. Consistent with evidence from Kinneer (2013), it was expected that hiring managers would favor employment candidates with college degrees when compared to similarly-qualified job candidates without college degrees. Respondents were asked which candidate would be the preferable hire, given similar experience backgrounds but differences in educational type; either possessing a traditional bachelor's degree (Candidate A) or the equivalent number of completed MOOC courses (Candidate B). Responses to question 11 are displayed in Table 6. A one-sample chi-square analysis shows a statistically significant difference between educational type and hiring preference, $\chi^2 (1, n = 202) = 94.27$, $p < .001$, where employers favor candidates with a traditional degree as opposed to those with the equivalent amount of MOOC coursework.

Table 6

Hiring Preference Based on Education

Education Type	Would prefer to hire (n)	Percent	Would not prefer to hire (n)	Percent
Candidate A (Traditional degree)	170	84%	32	16%
Candidate B (MOOCs equivalent)	32	16%	170	84%

Hiring managers' qualitative responses to open-ended questions indicate that their preference for traditional degrees stems from the perceived lack of academic integrity and accreditation currently present in MOOCs-based coursework. Verbatim comments include:

I believe that it may be more difficult to verify MOOC education. And I am not certain if individuals are evaluated for competency at the end of a MOOC as opposed to traditional college options.

[MOOCs] do not seem to carry the same weight as a degree from an accredited university.

[The lack of] academic rigor [via] an al a carte approach might leave gaps in critical areas that would be part of a traditional curriculum.

[Lack of] validity of learning taking place. I know of courses where there is no teaching taking place, just take a quiz or test and move on to the next level.

MOOCs seem more difficult to verify that [the] course covers material to prepare [an] employee for workforce.

MOOCs best serve to provide education/training for a niche skill. I don't see them as an alternative to an accredited degree program.

[The] commitment level is less; [they] are not accredited, and [they are] not as vigorous [sic] to complete [as compared to] a full degree.

Credibility will be the largest disadvantage in my opinion, as opposed to traditional college degree options with credible universities.

[There is] no formal accreditation and nothing to rely on regarding the quality of the course.

Results for Hypothesis H1₂

Hiring managers will perceive that collegiate degree-holders are more likely to gain promotion than employees with MOOC coursework.

The second hypothesis analyzes hiring managers' perceptions of MOOCs as relates to the promotion ability of employees. Evidence suggests that apart from only the lowest grades of work, educational attainment demonstrated through degree credentials bears influence on job promotion (Spilerman & Lunde 1991). Research also shows that there is a positive relationship between additional education and perceptions of organizational mobility (Buchanan, 2007). Therefore, it was expected that employees with traditional college degrees would have a higher likelihood of being promoted than employees with MOOC credentials. A one-sample Wilcoxon Signed Rank Test was calculated using survey item 27 and the results ran contrary to the previous literature. The one-tailed test was not significant ($p = .33$) and therefore this hypothesis was rejected.

Though not statistically significant, this hypothesis was anecdotally supported through survey respondents' open-ended comments. Some perceived advantages of MOOCs distinctly indicate that they may be a valuable source of education and training for currently-employed individuals – and those having a traditional degree – who are seeking additional education for promotion or position-duty enlargement. Verbatim comments are as follows:

For those who already have a degree, MOOCs can provide knowledge in specific content that could enhance the employee's job performance.

It is my belief that MOOCs could provide continued education to employees who currently hold a degree.

They could add to the knowledge base an employee already has from a traditional degree.

[MOOCs] allow working adults to participate in programs to further knowledge skills and abilities.

MOOCs are very likely an excellent supplemental tool for individuals who have already completed a traditional 4 year bachelor's degree.

For a job applicant the degree is important. For continuing education within an organization the MOOCs could be beneficial.

Results for Hypothesis H1₃

Hiring managers will perceive job applicants with traditional college courses as having better communication and teamwork skills than MOOC-educated applicants.

Hypothesis 3 builds on evidence from Kavanagh and Drennan (2005) that suggests employers perceive personal, written, and oral communication as being as important as technical skills in the workplace. Connectivism-based research conducted by Siemens (2005) also suggests that interactive online learning environments such as MOOCs can strengthen learners' communication and collaboration abilities. To test this hypothesis, a one-sample Wilcoxon Signed Rank Test was conducted. Results were significant at the $p < .001$ level for survey item 19, indicating hiring managers believe that traditional college courses would develop students' communications skills better than MOOCs, thereby refuting Siemens' claim.

Respondents' open-ended comments regarding perceived disadvantages of MOOCs particularly focused on the lack of communication skills developed by non-traditional forms of higher education. Responses included:

Perhaps MOOCs would create a lack of interpersonal communication skills due to a more technical environment.

If the applicants are not forced to work on team projects, there are some disadvantages in examining the applicant's role in cooperative projects.

Human interaction [would lack]. My industry is primarily customer service and teamwork, which is not developed through the online experience.

Not having face-to-face interactions with others in the class and with instructor.

On-line courses do not teach with collaboration of students and practice delivering presentations to an audience.

[MOOCs would result in] possibly less experience in teamwork and collaboration.

The only disadvantage to MOOCs is that you would not have any projects that require you to work with others.

[MOOCs offer] less interaction, less social development, and less learning of how to debate with other students and exchange discourse.

The social face to face interactions in a traditional degree are invaluable. That is more difficult with a MOOC.

Results for Research Question 2

RQ2: What is the relationship between differing demographic characteristics among hiring managers and their perceptions of MOOCs as a viable educational source?

Research Question Two examines the effect that demographic variables have on hiring managers' attitudes toward MOOCs, and is centered on similar studies conducted by Thompson (2009) and Kinneer (2013), and others. Findings in the literature suggest that demographic variables such as an employer's educational background and postsecondary learning modality, organization and industry type, prior experience with non-traditional education programs, and differences in employees' job duties explain varying degrees of employer acceptance and preference for both traditional and non-traditions forms of postsecondary education (Adams & Defleur, 2006; Thompson, 2009; Fogle & Elliot, 2013; Kinneer, 2013).

Results for Hypothesis H2₁

Hiring managers who have taken online or distance education courses will perceive MOOCs more favorably than hiring managers who have taken only traditional, face-to-face courses.

Results for survey question 5 – respondents' type of education received – are presented in Table 1. The majority of participants (53%) reported that their entire post-secondary educational experience was through traditional, face-to-face coursework. Forty percent completed a form of hybrid education consisting of face-to-face and online-delivered classes, and only 7% of the study's respondents completed their entire post-secondary training in a fully-online modality.

Research by Fogle and Elliot (2013) found that employers having online or hybrid educational backgrounds were more likely to favor job candidates with online degrees. Thus, it was hypothesized that individuals having more experience within a distance-education environment would perceive the online learning presented in MOOCs to be more valuable than individuals without online experience. A simple linear regression was calculated and determined that employers' educational modality could not significantly predict their perceived value of MOOCs, where $\beta = .157$, $t(201) = 1.028$, $p = .305$. To account for the disparity in respondents'

educational attainment, the four groups in survey item 5 were condensed into two; the first being individuals receiving all face-to-face education and the second consisting of individuals with some degree of online experience. An independent-samples t-test was calculated to compare group differences between individuals with differing educational modalities and their agreement with survey item 12. Table 7 indicates that there was no statistically significant difference in perceptions of MOOCs based on differing types of employers' post-secondary education at the $p < .05$ level.

Table 7

Hiring Preference Based on Hiring Managers' Educational Background

Respondents' Education Type	(n)	Mean for survey item 12	Std. Dev.	<i>t</i>	df	Sig. (2-tailed)
Traditional, F2F	107	3.07	1.16	-1.03	200	.305
Hybrid or Fully Online	95	3.23	.994			

Note. Levene's Test = 1.25, $p = .265$

To further examine hypothesis 1, a 2x2 chi-square test for association was calculated between type of education received by respondents and preference for job-candidates with either a bachelor's degree – Candidate A – or the equivalent amount of MOOC coursework – Candidate B – (as reflected in survey question 11). All expected cell frequencies were greater than five, further illustrated in Figure 5. While there is a clear preference for candidate A, there was no statistically significant association between respondents' educational background and their preference for job candidates' education type, where $\chi^2 (1) = .567$, $p = .451$.

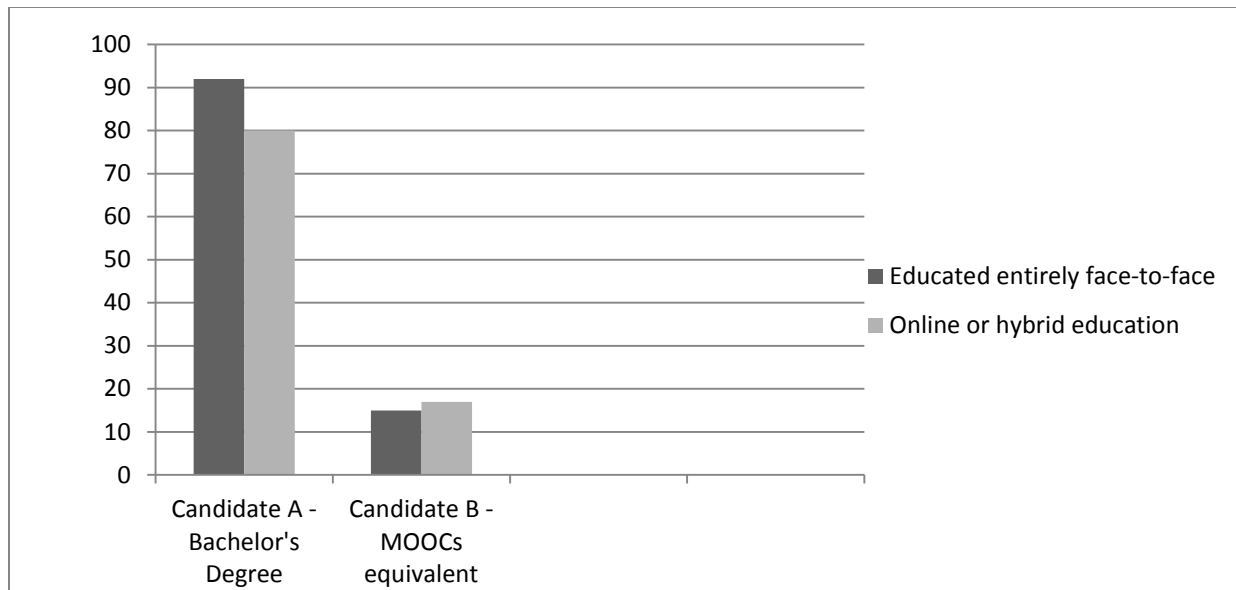


Figure 5. Respondents' education type versus preference for job candidate.

Results for Hypothesis H2₂

Hiring managers who have more familiarity with MOOCs prior to the survey will perceive MOOC-educated candidates more favorably than hiring managers who are less familiar with the concept of MOOCs.

A recent study of 116 healthcare professionals found that recruiters having prior experience with online and distance education had increased perceptions of non-traditional degrees' worth (Kinneer, 2013). Similarly, the third hypothesis in this study predicts that hiring managers' familiarity level with MOOCs will cause them to perceive MOOCs' value differently. A simple linear regression was calculated to determine if hiring managers' familiarity with MOOCs would predict their overall perceived quality of MOOCs; with more familiarity leading to higher quality perceptions of MOOCs. Survey item number 8 functioned as the independent variable (level of familiarity with MOOCs prior to the survey) and survey item number 12 served as the dependent variable. While not statistically significant at the $p < .05$ level, results indicate a trend toward a linear relationship between familiarity with MOOCs and employers' overall

perception of MOOCs, where $\beta = -.128$, $F(1,201) = 3.326$, $p = .070$. The coefficient of determination was low at $R^2 = .016$, however, indicating that hiring managers' experience with MOOCs explains less than 2% of the overall variance in MOOCs' perceived quality.

A possible explanation for the lack of significant findings for this hypothesis may lie in the fact that many hiring managers represented in this study had little to no exposure to MOOCs prior to this survey. It was hypothesized that employers that were more familiar with MOOCs would perceive MOOCs-educated job candidates more favorably. However, nearly half (47%) of all survey participants indicated having never heard about MOOCs prior to this study, as shown in Table 8. While the number of respondents indicating more than a partial awareness of MOOCs seems low at 33% (n=66), it is consistent with previous research conducted by Radford et al. (2014) which found only 31% of the 398 employers included in the study had prior knowledge of MOOCs.

Table 8

Familiarity With MOOCs Prior to Survey

Experience with MOOCs	n	Percent	Cumulative %
First time hearing about MOOCs	96	47%	47%
Partially aware of concept	40	20%	67%
Fully aware of concept	40	20%	87%
Personally experienced MOOCs	26	13%	100%
Total	202		

When asked to comment on perceived disadvantages of MOOCs, hiring managers' open-ended comments additionally support the industry's current lack of awareness with MOOC characteristics. Individual verbatim responses are as follows :

MOOCs are still not recognized with in industries and hiring managers. Many people have no idea of what a MOOC is and when you tell them they dismiss it. They are

viewed in the same way online course were and sometimes still are thought of a decade ago.

Awareness about MOOCs is low - recruiters/hiring managers may not want to take the time to understand how this compares to a traditional degree.

Employers need to understand MOOC education and develop job requirements to included so until then MOOC may not be viewed the same as a traditional degreed program.

Without educating employers on the benefits, MOOCs will not be accepted.

Employers not having the understanding of how MOOC courses work and its benefits.

There is little known about them compared to traditional education & therefore the quality of the education tends to be questioned.

They aren't as well known by employers.

[MOOCs are] unknown to employers - would be hard to convince a manager to think this was better than a traditional degree.

[There is a] lack of understanding [of a] new concept – challenge [is] to articulate to others who have no knowledge of MOOCs.

Results for Hypothesis H2₃

Hiring managers with fewer years of industry experience will perceive MOOCs more favorably than more experienced hiring managers.

The third hypothesis predicts that hiring managers' perceptions of MOOCs will differ based on their experience in the field. Evidence suggests that online and distance education programs are becoming more accepted by recruiters due to the fact that younger hiring managers are more familiar with online learning environments (Haynie, 2014). Similar to hypothesis

number 1 for research question 2, respondents' experience levels were not evenly distributed among the 4 available categories. Therefore, responses were condensed into two broader experience levels – either less than 10 years of HR experience or more than 10 years' experience. An independent-samples t-test was calculated to compare group differences between individuals with differing lengths of experience and their agreement with survey item 12. There was no statistically significant difference in employers' perceptions of MOOCs and overall length of employment at the $p < .05$ level, as shown in Table 9.

Table 9

Employee Preference Based on Hiring Managers' Experience Levels

Respondents' Experience (in years)	(n)	Mean for survey item 12	Std. Dev.	<i>t</i>	df	Sig. (2-tailed)
Less than 10 years	88	3.25	1.20	1.17	200	.243
Ten or more years	114	3.07	1.13			

Note. Levene's Test = .642, $p = .424$

A one-way analysis of variance (ANOVA) was also calculated in relation to Hypothesis 3 to determine if hiring managers' perceptions of MOOCs (as represented in survey item 12) were different based on age (survey question 1). There was no statistically significant difference in hiring managers' perceptions of MOOCs and differences in their age, where $F(4,197) = .430$, $p = .787$.

Results for Hypothesis H2₄

There will be a significant difference in hiring managers' perceptions of MOOCs based on differences in industry sectors.

According to Thompson (2009), the industry sector to which a hiring manager belongs has a direct impact on their preference for degree types among job candidates. To test Hypothesis 4, a one-way between groups analysis of variance (ANOVA) was conducted with the

independent variable represented by hiring managers' industry sector and agreement with survey item 12 representing the dependent variable. Contradictory to previous research, there was no statistically significant difference at the $p < .05$ level for hiring managers' industry sector and their preference of MOOC coursework [$F(8,193) = 1.202$, $p = .30$] as shown in Table 10. Similarly, employers' preference for MOOCs was not significantly different based on the workforce size of their organization [$F(8,193) = 1.14$, $p = .34$], as indicated in survey question 7; thus, this hypothesis was not supported.

Table 10

Belief That MOOCs Could Prepare an Individual in Given Employment Field

Industry Type	n	<i>M</i>	Std Dev	F	Sig.	Welch's F
Advanced materials	44	3.18	1.063	1.202 df=8,193	.300	2.097 df=8,22 sig .079
Agriculture / food production	8	3.50	.756			
Bio-medical / scientific services	5	3.80	.447			
Building / construction	6	3.67	.516			
Business / financial / retail	65	3.06	1.130			
Education / healthcare services	53	2.98	1.047			
Energy / oil and gas extraction	5	2.60	1.517			
Information technology	12	3.50	1.314			
Transportation and logistics	4	3.75	.957			
Total	202	3.15	1.083			

Further examination of the responses represented in Table 10, however, reveal particularly favorable scores for MOOCs' perceived efficacy in higher-tech industries such as bio-medical and scientific services, logistics, and information technology. The lowest favorability ratings for MOOCs fell into industry sectors represented by education and healthcare services, as well as energy and oil/gas extraction. Some explanation for this variance is likely due to the need for professional degrees or certifications in some industries that MOOCs do not currently provide. Yet for technical skills-based positions, MOOCs are viewed as more

favorable. Verbatim comments to open-ended questions also help support this claim and are as follows:

The MOOC coursework may prepare candidates for a more technologically based environment over traditional degree coursework. Roles are becoming more technical, and MOOC coursework may help to prepare individuals better.

In manufacturing we see a greater advantage for candidates with MOOCs plus an Associate Technical degree and/or HS Diploma over candidates with just a HS Diploma.

The MOOCs demonstrate both a broader degree of overall development and a greater self-awareness in gaining professional skills by the candidate.

If you're going into a specified field (say Human Resources), taking MOOCs coursework in just Human Resources may be more beneficial than getting a Bachelor's in Business, which covers a wide variety of business fields.

Accounting is very different because they MUST complete certain classes in order to sit for the CPA exam, they MUST have a degree. They MUST have 150 credits. For us, it wouldn't work.

At a hospital system, traditional degrees are required for many licensed positions.

Certain occupations, i.e. nursing and therapy require a degree program.

Results for Hypothesis H2₅

There will be a statistically significant association between the need for employees to have good communication and soft-skills and hiring managers' perceptions of MOOCs.

Hypothesis 5 builds on qualitative responses from Thompson's (2009) research that found employers to be skeptical of online-educated students' communication and team-building skills, as well as literature from Griffin, Cangelosi, and Hargis (2014) suggesting job candidates'

ability to communicate well is an important factor when making hiring decisions. Results from a Spearman's rho calculation, as shown in Table 11, indicate that perceptions of employees' need for communications skills (survey item 18) and hiring managers' belief that traditional college education would develop communication skills better than MOOCs (survey item 19) were significantly associated at the $p < .05$ level, where $r(202) = .186$, $p = .008$. Many respondents' open-ended comments also support these findings (see Appendix F).

Table 11

Spearman's Rho Association

		Survey item 18	Survey item 19
Survey item 18 – candidate's need for communication	Correlation Coefficient	1.000	.186
	Sig. (2-tailed)		.008
	n	202	202
Survey item 19 – education modality that would best develop communication	Correlation Coefficient	.186	1.000
	Sig. (2-tailed)	.008	
	n	202	202

To further test Hypothesis 5, a one-way analysis of variance (ANOVA) was also calculated to determine if differences in employees' communication and teamwork needs (as determined by survey item 10) would influence employers' perceptions of MOOCs' overall value on the dependent variable represented by survey item 12. There was no statistically significant difference between employees' need for teamwork or collaboration on the job and hiring managers' perceptions of MOOCs, where $F(3,198) = 1.879$, $p = .134$.

Chapter Summary

This chapter statistically examined hiring managers' perceptions of MOOCs as compared to traditional forms of higher education. The analysis techniques used to assess both research questions and their respective hypotheses included descriptive statistics and central tendencies,

Wilcoxon signed-ranks tests, a principal components factor analysis (FCA) and corresponding correlation matrix, analysis of variance (ANOVA), simple linear regression, chi-square analysis, and t-tests.

Statistical difference was found with many Likert-type attitudinal questions pertaining to research question 1 and employer preferences. Survey responses indicate employers' support for the overall value of MOOC learning, but also indicate a trend toward credentialism-based hiring practices. Common themes related to hiring managers' perceptions of MOOCs also emerged in areas related to organization training needs and MOOCs' unlikely ability to strengthen communication skills in learners. Statistical calculations additionally showed support for Hypotheses 1 and 3, signifying hiring managers' preference for job candidates with traditional degree credentials as well as the need for employees with adequately-developed communication and leadership skills. While findings for Hypothesis 2 ran contrary to previous literature, evidence suggests that MOOCs would be equally valuable to traditional education courses when employers are making job-promotion decisions. With non-statistically significant findings to many directional hypotheses pertaining to Research Question 2, results suggest that demographic variables among employers do not influence their perceptions of MOOCs as an educational option. Although not specific to demographic disparities among the respondents, a review of the open comments also found that while hiring managers were generally skeptical of MOOCs' rigor and overall learning environment, they believed MOOCs would be a good learning supplement to individuals having already completed a traditional degree.

Chapter 5 presents a more in-depth discussion of the findings related to each research question and hypothesis, as well as theoretical and practical implications of this study, and will conclude with recommendations for potential future research.

CHAPTER V

DISCUSSION

Summary

Differentiating between online distance education and traditional face-to-face instruction has been the focus of many research endeavors. However, Massive Open Online Courses (MOOCs) represent a disruptive extension to online education in that they have the ability to reach far more learners and impact larger numbers of outside stakeholders due to their low cost and ease of entry. To explain how the fundamental differences in MOOCs may impact students, universities, and the workforce at large, this study's purpose was to descriptively, statistically, and theoretically account for hiring managers' current perceptions of MOOCs as an educational option when compared to traditional means of postsecondary learning. Despite the increased number of individuals that completed MOOC courses in the past few years, it is unclear if hiring managers and recruiters are willing to accept them as viable educational replacements for traditional degree-conferred credentials.

Supporting the need for this study, Chapter 1 outlined the exponential growth of MOOCs over the past decade. Reporting by Class Central and Shah (2015), indicating that over 35 million students signed up for MOOC courses in 2015, segues to the rationale for this study as a whole. Represented minimally in the literature, there is insufficient evidence pertaining to employers' knowledge and perceptions of MOOCs and their future positioning in the higher education landscape as an alternative to traditional means of knowledge and skill development.

Chapter 2 explained the skills gap currently faced by American businesses and the overall labor-force while also discussing practical models of MOOC-based instruction. Mathematically, present unemployment figures and organizational job-vacancy rates represent one of the widest

skills gaps in American history (Gillespie, 2015). Consequentially, evidence suggests that MOOCs have the potential to minimize this gap in both private and public institutions (Manceli, Georgilas, & Petridis, 2015; Sanchez-Gordon et al., 2015). Literature regarding perceptions of MOOCs by higher education students and faculty was also presented. Evidence suggests that while students are optimistic about the open-access and cost-savings potential for MOOCs (King, Robinson, & Vickers, 2014; Ulrich, 2015), faculty are more incredulous due to the imposing threat MOOCs present to individual faculty members and the profession at large (Basu, 2012; Lewin, 2012; Haber, 2014). Lastly, Chapter 2 discussed the main theoretical frameworks used to view the MOOC phenomenon. Connectivism theory seeks to explain how learning – and specifically, communication – is achieved in online and digital courses such as MOOCs. Human capital theory contends that increases in education can benefit both learners and their corresponding employers through skill and productivity improvement, while affording employees higher salaries and incentives. Credentialism theory is a functionalist proposition whereby employers only value higher education insofar as it results in a degree credential for the learner. Credentialism supporters also indicate that hiring decisions based on applicants' conferred degrees reduce time and resources in the screening and job-onboarding process. Triangulating connectivism, human capital theory, and credentialism, MOOCs can be analyzed through a theoretical lens that allows them to be explained within the context of a cost-benefit analysis of learner expectations and employer perceptions of value.

The study's methodological approach was outlined in Chapter 3. The cross-sectional survey design and corresponding quantitative measures were the most appropriate means of data collection and analysis for this type of research. Over a one month period, 202 individuals completed a 30 item online questionnaire consisting of fixed-response demographic questions,

Likert-type attitudinal preference statements, and two open-ended questions that allowed respondents to indicate potential advantages and disadvantages of MOOCs in their own words. Represented by individuals associated with the Society for Human Resource Managers (SHRM), the sample of hiring managers in this study consisted of employers, recruiters, and HR executives active in the field today.

Methods pertaining to the statistical analysis of this study's survey data and subsequent findings were presented in Chapter 4. Descriptive statistics including frequencies, percentages, and measures of central tendency illustrate the respondents' makeup as well as their level of agreement with statements pertaining to MOOCs' value. Inferential statistics were calculated and reported to show associations between variables and to test for significant differences among various demographic characteristics in the sample. Survey respondents' comments to open-ended questions relating to MOOCs' advantages and disadvantages to employers were also presented throughout the chapter. The overall results indicate that while employers are generally optimistic about MOOCs' potential, they do not perceive MOOCs as having the same degree of credibility during the hiring process when compared to traditional higher education programs.

Chapter 5 further discusses each research question and analyzes the results within the theoretical constructs presented. Additionally, this chapter discusses the implications associated with the main findings, cites limitations that affect the generalizability of the outcomes, and provides recommendations for further research.

Discussion of Research Question 1

The first research question examined hiring managers' current attitudes toward MOOCs as a form of postsecondary education. A common theme in this study was the distinct lag in the ubiquity of MOOCs in higher education and hiring managers' present knowledge of them. While

approximately half of all respondents had little to no experience with MOOCs at present, many believed that their respective organizations would at least consider hiring an applicant with MOOC credentials instead of a traditional college degree. Consistent with findings from Adams and Defleur (2006), however, results pertaining to the first hypothesis show that indeed hiring managers have a significant preference for job candidates that have earned a traditional degree as opposed to those with comparable amounts of MOOC coursework. Organizational practices are consistent with employer preferences also, with many organizations having specific hiring policies predicated upon job-candidates' completion of a traditional degree. Results also indicate that employers are skeptical of MOOCs' learning environment at present and perceive them as inferior to the more rigorous nature of traditional college programs that are accredited.

A key construct in human capital theory, as pertains to research question 1, is the expectation of tangible outcomes. Similar to expectancy theory (Vroom, 1964), human capital theory indicates that individuals who attain higher levels of education do so, in part, because of the expected outcomes that accompany their behavior – primarily higher earnings and career advancement. A noteworthy perspective of human capital theory implies that individuals should consider their overall educational cost in conjunction with the expected benefits of extending their knowledge (Becker, 1993; Schultz, 1961). Given that the monetary investment in MOOCs is considerably less than traditional degrees, differing levels of tangible outcomes should also be expected. The most pivotal construct within human capital theory, however, is credentialism. Credentialism-based hiring practices are not concerned with job candidates' skill level or overall educational attainment. Rather, credentialism places value on an individual's degree only. Exemplified in the findings for Research Question 1, employers believe that while MOOCs could potentially prepare an individual for employment in their given field as well as a

traditional degree, organizational hiring decisions are largely based on degree credentials rather than job skills or individual courses. Further exemplifying this point is the fact that only 63 out of the 202 respondents to this survey (31%) worked for an organization that required a skills-based assessment as part of their applicant screening process.

Advancing human capital theory, Hypothesis 2 examined the perceived promotability of MOOCs-educated employees when compared to those with traditional degree credentials. Findings reveal that employees' job-advancement and potential for job promotion would not be significantly impacted by their choice of post-secondary training. In alignment with Sanchez-Gordon et al. (2015), survey respondents likewise perceived MOOCs as an attractive training alternative for an organization's current workforce, indicating that MOOCs would be a quality means for employees' continuing education needs. Broadening suppositions by Manceli, Georgilas, and Petridis (2015), findings were particularly true of technology-dependent industries where employers perceived MOOCs as being more targeted to specific niche skill-sets and potentially offering more up-to-date courses than traditional college coursework.

Although connectivism theory is closely tied to MOOCs, it has not been directly applied to employment opportunities associated with expectations of the connectivism-based learner. Hypothesis 3, which examined communication needs by employers and how teamwork and communication skills are developed at the postsecondary level, shows evidence in contrast to connectivism-based learning outcomes. While they expect job applicants to have good communication and teamwork skills, hiring managers believe that traditional degrees would develop the requisite communication skills needed at their organization significantly better than MOOCs. Fini (2009) explained how technological media could foster communication skills online, yet findings in this study indicate that the lack of perceived face-to-face interaction with

other students and faculty in MOOC courses would impair non-traditionally educated applicants' social development and collaboration skills in the workplace.

Discussion of Research Question 2

The second research question examined what effects, if any, demographic differences among hiring managers have on their perceptions of MOOCs. Focusing on evidence from Fogle and Elliot (2013), the first hypothesis predicted that differences in hiring managers' educational background at the postsecondary level would directly impact their attitudes toward MOOCs. The findings in this study did not show statistical significance to support this claim, however. Employers indicating experience with fully-online or hybrid educational modalities did not differ significantly with those educated in a traditional face-to-face setting in their respective value judgments of MOOCs. Still, the lack of significance in this hypothesis is encouraging to individuals considering MOOCs. Given the non-credential limitations MOOC-educated individuals will likely face when applying for employment, hiring managers' postsecondary education modality will not be an additional barrier to entry.

Hypothesis 2 examined the extent to which familiarity with MOOC concepts affects hiring managers' attitudinal perceptions of them. A trend toward significance was found through regression analysis indicating that employers who have a greater understanding of the MOOC infrastructure also perceive MOOCs' value more positively. This tendency was consistent with Kinneer's (2013) report that found healthcare recruiters' hiring preferences were impacted by their prior exposure to distance education. While diffusion theory was not a framework used in this study, it likely factors into the explanation of the resulting outcomes for Hypothesis 2. Simply put, cutting-edge innovations are met with skepticism and uncertainty by the majority of the population when first introduced (Rogers, 1995). Acceptance of new technology is largely

dependent upon individuals' increased understanding of the concept and how it will affect them personally. Given that MOOCs are becoming increasingly widespread, hiring managers' recurrent exposure to them will allow for greater insight into how to implement MOOCs most effectively moving forward.

Extending Hypothesis 2, the third hypothesis similarly expected less experienced, and presumably younger, hiring managers to perceive MOOCs more favorably than individuals with more HR experience and longer tenures in the profession. Findings show that differing lengths of industry experience in hiring, recruiting, or screening job applicants did not account for distinct differences in hiring managers' perceptions of MOOCs' value. This demographic was not explicitly examined in other studies, although it is logical to assume that employers' value-laden perceptions of a job candidate's degree's worth has evolved over time due to the increased pervasiveness of higher education at large. Although it was predicted that more experienced, and thus older, hiring managers would perceive MOOCs less favorably, a possible explanation for the contradicting results could be the non-educational success factors that more experienced hiring managers have come to acknowledge during their time in the profession.

Previous research indicates that human capital and credentialist positions depend on qualitative differences. Evidence suggests that technical positions rely on skills gained through investments in human capital, while credentialism is more often applied to positions requiring education in the liberal arts (Walters, 2004). Therefore, Hypothesis 4 predicted that differences in hiring managers' industry sectors would account for changes in their perceptions of MOOCs' value. Potentially due to the lack of equal representation for each of the nine industry sectors, this hypothesis was not statistically supported. Nonetheless, analysis of central tendency responses for each industry, along with respondents' comments, suggest that many business

professions such as accounting, education, and human resources clearly require traditionally-conferred degrees, whereas job applicants in tech-based industries could expect MOOC training to be viewed as more beneficial in regards to the increased human capital they provide.

Signifying the inferred differences between traditional education and MOOCs regarding communication development, results for Hypothesis 5 indicate that traditionally-educated job applicants are perceived as having better communication and collaborative abilities than their MOOC counterparts. A significant association was found between hiring managers' perceptions of MOOCs' ability to develop learners' communication skills and the need for their employees to speak and write well while working in a team setting. Theoretically, these results indicate that employers' general understanding of the MOOC-based learning environment directly affects their perception of the type of collaborative and team-based learning that occurs within a MOOC. In direct contrast to theoretical claims by connectivism advocates suggesting that the technological environments in MOOC courses create new opportunities for learners to collaborate and share information (Siemens, 2005; Downes, 2006), evidence in this study shows hiring managers are doubtful of MOOCs' ability to develop social discourse and communicative soft-skills fostered through traditional degree programs.

Implications

The main implication of this study is that MOOCs represent neither a panacea to the issues facing higher education and the American labor-force nor an alarming threat to stakeholders appreciative of the status quo. Perhaps best situated as a complement to traditional higher education degree programs, MOOCs seemingly do not present an external threat to universities and colleges choosing not to offer them. By dismissing the fallacy that MOOCs represent the universal prescription to all individuals seeking higher education, the many benefits

they offer can be pursued and measured objectively and in accordance with other educational options.

In contrast to evidence found by Thompson (2009), Fogle and Elliot (2013), and Haynie (2014), neither changes in hiring managers' age, experience level, industry sector, nor organizational size had a significant impact on their overall perceptions of MOOCs. While the results of this study failed to statistically support many of the directional hypotheses presented in Research Question 2, the underlying implication is that, apart from organizational hiring standards, employers' demographics do not directly account for changes in their respective attitudes toward MOOCs' quality.

Using team assignments, collaborative writing tasks, and online discussion boards are excellent ways to encourage communal learning and improve students' teamwork skills in a distance education course (Sull, 2007). However, the findings in this study suggest that employers perceive MOOCs as deficient in developing students' communication and teamwork skills. These results indicate both the obligation for MOOC instructors to create assignments and activities that cultivate students' communication abilities in the connectivism-based learning environment, as well as the need for MOOC-educated students to better articulate their communication and collaborative abilities to potential employers.

In higher education, online and distance education programs have been effectively leveraged to increase enrollment figures and support universities' financial posterity (Kirk, 2010). Deviating from the per-credit payment model, however, MOOCs represent the potential for universities to misallocate funds and resources into unproven territory in an effort to keep pace with technology. Consequentially, without a proven return on investment or established revenue model, expenditures such as the \$30 million cost to Harvard and MIT in creating the

edX MOOC platform could be detrimental to less-endowed colleges' operating budgets. With findings showing the surrounding pessimism of MOOC credentials, it behooves universities to ask the crucial question of whether or not MOOCs have the potential to increase their gross revenues. The push to develop and offer innovative programs and non-traditional education options such as MOOCs must be weighed in accordance with the increased financial costs to the university. Institutions will need to address this issue strategically and with particular consideration to the university's long-term plan for open access to education.

At present, considerably fewer organizations represented in this study have pay systems in place that would monetarily value or incentivize MOOC courses when compared to traditional degrees. Challenging human capital theory, results imply that individuals' increased education through non-degree channels of learning does not necessarily lead to greater financial returns in the job market. Learners and higher education institutions alike should be aware that although the demand for MOOCs is steadily increasing, employability and compensation benefits for this type of education are not keeping pace with MOOCs' growth.

A final implication of this study supports and extends many suppositions of credentialism theory as it applies to non-degree postsecondary education. The findings show considerable favor for employers' preference of traditional degree credentials when all other job-related variables remained unchanged. Several aspects of this study imply that while MOOCs may be able to effectively advance learners' human capital, organizations might only truly consider them as an accompaniment to traditional degrees or as a cost-saving option for training individuals currently within the business's employ.

Limitations

The main limitation to the overall design and findings associated with this study was the use of a non-probability, purposive sample for data collection. The outcomes in this study are limited to individuals represented by employers, hiring managers, and recruiters in the U.S. only and this factor affects the ability to generalize findings from this sample to the overall population. Due to the nature of the data collection instrument, self-reporting without objective verification from organizational archival data could also be considered a limitation, though research of organizational behavior typically relies on subjects' self-reporting (Buchanan, 2007). Lastly, while the sample size for this study was adequate, a larger sample could have offered a greater depiction of industries and under-represented individual demographic variables characteristic in these findings.

Recommendations for Future Research

If MOOCs do indeed, as Brandon and Machado (2014) suggest, have the ability to optimize learning and develop students' individual and collaborative skills more effectively, additional research addressing the long-term benefits of choosing MOOCs in place of traditional education needs to be conducted. Longitudinal data collection and analysis of MOOC-specific learners' experiences when applying for employment and their corresponding progression in the workforce should be the primary directive of future research in this area. A repeated-measures focus-group-designed study along with participant diary examination analyzed through the lens of uses and gratifications theory would likely be an appropriate means to collect and interpret data that would enable researchers to report on student satisfaction when choosing MOOCs in place of a traditional degree program. Likewise, while evidence shows the relationship between higher education and lifetime earnings, benefits of attending a university and obtaining a

traditional college degree may go beyond a stark dollars and cents equation. Choosing an alternative education path such as MOOCs is a more cost-efficient postsecondary option currently, but lack of industry acceptance of MOOC credentials may outweigh short-term savings. Hence, long-term compensation figures need to be collected and analyzed in order to determine when, and if, traditionally-educated individuals' earnings outpace those choosing MOOCs.

While literature supports the non-financial benefits that MOOCs afford the respective colleges and universities that offer them (Negrea, 2013; Wilson, 2012), additional research should be explored concerning the monetization efforts of institutions currently offering MOOC courses. Through a cost-benefit design, research using universities as the analysis units should focus on organizational returns on investment, given the cost and resources needed to develop and administer a MOOC. With budget estimates for developing a MOOC at \$200,000 (DeJong, 2013), it seems foolhardy that universities will continue to offer them free of charge. Research focused on colleges' net financial returns for MOOC investments is limited at present and should be addressed in future studies.

Substantial amounts of open-ended comments included in this study represent hiring managers' perceptions of the advantages and disadvantages of a MOOC-educated job applicant. However, it was beyond the scope of this dissertation to offer a full narrative account of each employer's current attitudes toward MOOCs. Therefore, in order to provide a more thick and meaningful description of this phenomenon from an employer's perspective, a qualitative examination of employers' attitudes toward MOOCs should expand on the brief comments given in this study. An in-depth account comparing hiring managers' attitudes toward educational expectations and learning outcomes with differences between MOOCs and traditional higher

education degree programs is another important factor regarding the overall acceptability of MOOC coursework moving forward.

From a business perspective, it befits organizations to conduct their own research on the value of MOOCs relative to their corporate training needs. Findings indicate that many industries represented in this study encourage their workforce to continue with postsecondary education once they are employed. Correspondingly, external data reported by the Society for Human Resource Management also reveal that over 60% of employers offer tuition reimbursement for their employees' continuing education pursuits (Cherry, 2014). Given the need for employees' continued learning and development, coupled with the organization's likely financial output, singular research ventures for each business should be pursued to determine if MOOCs could be more effective than conducting in-house training programs or reimbursing employees for traditional college courses. Considering there are over 4,000 MOOCs currently available (Shah, 2015), it is conceivable that progressive organizations could create their own individualized instructional programs best-suited for their respective training and employee development needs.

As MOOCs become more popular among students and employers alike, research similar to that conducted in this dissertation also needs to recur. Currently, hiring managers' perceptions of MOOCs' quality are limited by the lack of knowledge many employers and recruiters have of them. Consistent with previous literature, this study reported that nearly half of all hiring managers polled had zero prior knowledge of MOOCs coursework presently. As MOOC technologies continue to diffuse into mainstream academia it is likely their increased prevalence will allow for improved understanding and acceptance at the organizational level, thereby affording more opportunities for significant findings and analysis of their true worth.

Conclusion

The state of the American labor force is in flux. Currently, the U.S. is experiencing a historically wide skills gap between industry needs and worker qualifications. Likewise, many American-based companies are outsourcing low-skill, labor-intensive manufacturing jobs and thus either laying off or repurposing and retraining their workforce. Higher education is similarly in a state of transition. Faced with increasing competition, efficacy challenges, and questions of value in the present marketplace, traditionally-held university action plans are under scrutiny. Rising costs coupled with a reduction in college-aged students have caused colleges and universities to seek out innovative instructional practices that are both attractive to students and cost-effective to implement. Such factors have likely caused both employers and top universities alike – including Harvard, Yale, MIT, Stanford, Princeton, Duke, Notre Dame, University of Pennsylvania, and over 600 others – to consider MOOCs as viable educational alternatives to traditional training and education programs. Yet, it seems that both underserved industry segments and student populations most benefitting from the advantages MOOCs offer are either not taking advantage of them or are simply unaware of their existence.

According to Chafkin (2003), the original vision for MOOCs by founder and CEO of Udacity Sebastian Thrun was to remake the higher education system by focusing specifically on training people for job-readiness. Currently however, the attempt to identify core competencies innate in MOOCs is ongoing. Unlike a radical alternative to traditional residential colleges, MOOC-based instructional endeavors at the university level should focus on replicating components already engrained in their business models. Akin to colleges offering credit for relevant work experience, accepting advanced placement high school courses in place of university classes, or allowing students to use CLEP exams to forego introductory coursework,

findings in this study suggest that MOOCs' short-term positioning would best be utilized as an accompaniment to a traditional degree program. In this fashion, universities are still able to expand the scope of their distance education programs, maintain instructional credibility, and benefit from front-end monetization all while students earn a more cost-efficient yet verified credential; one that is expected and valued by today's employers.

By many accounts, the potential for MOOCs to disrupt traditional higher education practices and instructional delivery processes is very real. The significance of this study is exemplified through the provision of new empirical evidence into a rapidly developing yet under-researched area of postsecondary knowledge attainment. By providing evidence-based research into a heretofore ignored stakeholder population, this study advances the overall understanding of MOOCs' disruptive potential in higher education and beyond. Because of the theoretical and empirical convergence of this research, both individuals seeking higher education as well as universities searching for cutting-edge and innovative programming options now have better insight into the benefits and drawbacks of MOOCs from an industrial perspective.

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Appendix A

Initial Email Sent to Society for Human Resource Manager Chapter Presidents

Good afternoon,

I am a faculty member and doctoral candidate at Indiana University of Pennsylvania. My current research focuses on hiring managers' perceptions of, and attitudes toward, changes in higher education. As such, I was hoping to survey members of the Society for Human Resource Management. My data collection will consist of a brief survey sent via email and will offer confidential responses, informed consent, and institutional review board approval from my university.

My question for you today pertains to email accessibility from SHRM members in your region. My request is for access to members' emails for this survey, or if more appropriate, I could send you an email link to my survey and would request that you forward it to your member base. This process would likely begin in February, 2016, but I wanted to ask for this permission as part of my preliminary research and proposal.

If you could respond via return email I would greatly appreciate it. If you do not have access to members emails but know someone else that I should contact I would appreciate that information, also.

Thank you very much in advance!

-Joe

Joseph Rosendale
Instructor, Management Department
Co-Director, Business Honors Program
Ph.D. Candidate, Communication & Instructional Technology
Indiana University of Pennsylvania
Eberly 418-P
Indiana, PA 15705
724.357.4585

Appendix B

Permission to Modify Survey Instrument (1)

November 11, 2015

Dr. James Kinneer, SPHR, SHRM-SCP
Indiana Regional Medical Center
835 Hospital Road
Indiana, PA 15701

Mr. Joseph Rosendale
Indiana University of Pennsylvania
Eberly College of Business
Eberly 418-P
Indiana, PA 15705

Joe:

In response to your email, I was pleased to learn of your interest in my dissertation research. Your study sounds very interesting and timely. You have my permission to use or modify my survey instrument in whole or in part as needed to complete your research.

I am interested in hearing the results of your study and I wish you the best in your endeavors.

Sincerely,

Jim Kinneer

Appendix C

Permission to Modify Survey Instrument (2)

Re: Question re: past dissertation student

Page 1 of 3

Subject: Re: Question re: past dissertation student

From: Leisa Thompson <leisadthompson@gmail.com>

Date: 12/04/15 12:53 PM

To: Joseph Rosendale <j.a.rosendale@iup.edu>

Hi Joe,

You have my approval to modify my survey instrument for your study.

Your research sounds very similar to what I studied and I would be interested in your findings.

Best,

Dr. Leisa Thompson

--

Leisa D. Thompson, Ph.D.
Research Scientist, University of Virginia
Director of Research and Consulting
NCWIT Extension Services for Undergraduate Programs

Appendix D

Informed Consent for Online Survey

Project title: Valuing non-degree, online training: An examination of hiring managers' perceptions of MOOCs

Researcher 1: Joseph A. Rosendale, Affiliation: Indiana University of Pennsylvania (IUP)
Campus Phone: 724.357.4585 E-Mail Address: jarose@iup.edu

Researcher 2: Mary Beth Leidman, Affiliation: Indiana University of Pennsylvania (IUP)
Campus Phone: 724.357.5763 E-Mail Address: mbleid@iup.edu

Overview: My name is Joseph Rosendale and I invite you to complete a brief survey that should take less than 10 minutes of your time. This survey is part of my dissertation research at IUP and is designed to provide general information about hiring managers' attitudes and perceptions of the value of Massive Open Online Courses (MOOCs).

MOOCs are a form of distance education offered online for little to no cost to the student. Although similar to online college courses, MOOCs are available to participants around the globe without the need for official acceptance to the college or university administering the MOOC. Thousands of participants enroll in each MOOC with less than 10% actually completing the course. Those that do complete the MOOC may receive a certificate or badge of completion from the administering college or university for a nominal fee. As of 2015, over 400 universities are offering MOOCs in over 2,400 individual courses.

Confidentiality: The following online survey has been set up using Qualtrics software so your responses will be confidential. The information obtained from this survey may be published in scholarly journals or presented at academic conferences, but your identity will be kept strictly anonymous. You will neither be asked to provide your name nor any contact information.

Participation: Your participation in this study is voluntary. You may choose to opt out of completing the survey at any time by simply closing your web browser. Any incomplete surveys will be excluded from analysis in the corresponding research. There are no foreseeable risks associated with participation in this study.

Consent: If you agree to participate, please click the link below to begin the Qualtrics survey. By clicking the link, you certify that you have read and understood the information in this email and you consent to volunteer to be a participant. You understand that your responses are completely confidential and that you have the right to end the survey at any point. Please feel free to retain a copy of this email for your records.

THIS PROJECT HAS BEEN APPROVED BY THE INDIANA UNIVERSITY OF PENNSYLVANIA INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS (PHONE 724.357.7730).

Appendix E

Survey Instrument Questions

0. I have received informed consent information regarding this survey and agree to proceed.
 - a. Yes / No question
 - i. *If the response is No, the survey will thank the person for his/her participation and end.*

[Prior to any questions being asked, the first screen that the participants will see after consenting to participate will be a definition and general information defining MOOCs.]

A Massive Open Online Course (MOOC) is a type of distance-education class or course of study made available over the Internet, usually without charge, to a very large number of people. Other MOOC characteristics include:

- The use of free-sourced, Open Educational Resources (OERs), such as videos, recorded lectures, modules, and tutorials
- Large numbers of worldwide students/participants; generally thousands per course
- No designated college credits, but sometimes offer ‘certificates’ of completion or ‘badges’ that may be issued or purchased after completing the course
- Generally affiliated, taught, and/or constructed in conjunction with a reputable university and faculty member
- Currently, the majority of MOOC participants are adult learners, many of whom reside outside the United States

1. What is your age?

1. Under 18
 - a. *If the response is under 18 the survey will thank the person for his/her participation and end.*
2. 18-25
3. 26-35
4. 36-45
5. 46-55
6. Over 55

2. How many total years have you worked in human resources, recruiting, or been involved in screening, interviewing and/or hiring candidates?

1. I am not involved in hiring, recruiting, or human resources at all
 - a. *If ‘not involved’ then the survey will thank the participant and end.*
2. 0-2 years
3. 3-5 years
4. 6-10 years
5. More than 10 years

3. With what gender do you currently identify?
 1. Male
 2. Female
4. What is your highest level of education:
 1. High school diploma
 2. Some college
 3. Associate's Degree
 4. Bachelor's Degree
 5. Master's Degree
 6. Doctorate or Advanced Degree
5. What represents the main instructional mode by which you were educated at the post-secondary level:
 1. All face-to-face, in-person instruction
 2. A hybrid mix between in-person and online instruction, but the majority was face-to-face
 3. A hybrid mix between in-person and online instruction, but the majority was online
 4. All online, distance-education instruction
6. Which area below best describes the industry or sector of the organization for which you mainly hire or recruit:
 1. Advanced materials / goods manufacturing
 2. Agriculture / food service and production
 3. Bio-medical / professional scientific services
 4. Building / construction / civil engineering
 5. Business / financial / retail services
 6. Education / healthcare services
 7. Energy / oil and gas extraction
 8. Information technology / communication services
 9. Transportation and logistics
7. What is the approximate workforce size of the organization in which you are currently employed:
 1. Less than 50 employees
 2. Between 50 and 99 employees
 3. Between 100 and 249 employees
 4. Between 250 and 499 employees
 5. Between 500 and 999 employees
 6. 1000 or more employees

8. Prior to this survey, what is your familiarity with the concept of MOOCs
 1. This is the first time I have heard of MOOCs
 2. I was aware of the concept, but did not know how they worked
 3. I was aware of the concept and had a good idea as to the learning environment and educational outcomes associated with them
 4. I have experienced MOOCs personally, and therefore believe I understand them more than others in my field.

9. Have you or your organization ever hired anyone that has MOOCs listed as their primary means of post-secondary education
 1. Yes
 2. No
 3. Unsure

10. At my organization, most employees' daily work responsibilities are:
 1. Mostly spent working alone
 2. Spent working individually, with some contact with other employees
 3. Spent working collaboratively as part of a team for the majority of their tasks
 4. Leading a team of other employees and/or peers

11. Assume that the following 2 candidates have similar work experience. Candidate A has a bachelor's degree from a known university (assuming 120 credits ~ 40 classes total). Candidate B has completed 40 MOOCs that are related to the field for which the candidate is applying but does not have a formal degree. If education is the only differentiating factor, which candidate would you be more likely to hire?
 1. Candidate A
 2. Candidate B

For the following statements, please rate your agreement using the scale of:

5=strongly agree; 4=agree; 3=neither agree nor disagree; 2=disagree; 1=strongly disagree

12. I believe that MOOCs could prepare an individual for employment in my field of occupation as well as a traditional college degree program
13. With few exceptions, the completion of a college or university degree is a minimum requirement for most positions at my organization
14. Academic requirements are flexible in my organization, and each hiring manager uses their own judgment as to an applicant's educational background
15. At my organization employees are encouraged to continue their education throughout their employment by completing traditional college courses for credits.
16. For current employees at my organization, I believe MOOCs would be a better way to continue their education than traditional college degree programs
17. When reviewing an application, my organization generally considers the overall college degree, rather than specific courses that were completed

18. When considering a job applicant, the need for communication and social skills, such as the ability to work with others and speak and write well is an important consideration
19. I believe that traditional college courses would develop students' communication, collaboration, and teamwork skills better than MOOCs.
20. My organization prefers to hire applicants who have college degree credentials
21. My organization would consider hiring applicants who have non-degree training certifications, such as certificates of completed MOOCs, as opposed to college degrees
22. I believe that college or university degrees make it easier for my organization to evaluate an applicants' ability to perform a job
23. The overall evaluation of a job-applicant without a traditional college degree requires more time for background and reference checks than applicants with degrees
24. I believe that an applicant's past work history is more important than post-secondary education with regard to employment consideration
25. At my organization the salary / pay scale in place at the time of hire is based on education and/or degree credentials (assuming a higher degree equates to a higher pay scale).
26. At my organization there is a salary / pay scale in place at the time of hire which is based on non-traditional forms of education such as MOOCs (assuming more MOOCs completed equates to a higher pay scale).
27. At my organization individuals with traditional college credentials tend to be promoted faster than individuals with other forms of post-secondary education such as MOOCs

The following 3 questions will contain a comment box and are open-ended.

28. Yes or No -- My organization requires some form of job-skills test or assessment at some point in the interview process. If 'Yes' please briefly describe.
29. Please comment on any perceived advantages of choosing MOOCs coursework over tradition degree-conferred college options
30. Please comment on any perceived disadvantages of choosing MOOCs coursework over tradition degree-conferred college options

You have reached the end of this survey. At this point, I request that you forward the initial email you received to any personal associates or others at your organization that are in the field of HR and involved in hiring or recruiting that could add value to this study. If you have any questions or would like more information about this study please contact the main researcher, Joseph Rosendale, at jarose@iup.edu. Thank you very much for your valued input and time!

Appendix F

Survey Respondents' Open-Ended Comments

To obtain a more in-depth understanding of hiring managers' perceptions of MOOCs, respondents were given the opportunity to offer input to two open-ended questions. The following comments are verbatim responses to the question, *"Please comment on any perceived advantages of MOOCs over traditional degree-conferred college options."*

"The MOOC coursework may prepare candidates for a more technologically based environment over traditional degree coursework. Roles are becoming more technical, and MOOC coursework may help to prepare individuals better."

"It is my belief that MOOC's could provide continued education to employees who currently hold a degree."

"Flexibility, cost, good alternative for career changer with a previous college degree in other field."

"In manufacturing we see a greater advantage for candidates with MOOC's plus an Associate Technical degree and/or HS Diploma over candidates with just a HS Diploma. The MOOC's demonstrate both a broader degree of overall development and a greater self-awareness in gaining professional skills by the candidate."

"They could add to the knowledge base an employee already has from a traditional degree."

"It may provide more targeted training to job areas."

"Allows working adults to participate in programs to further knowledge skills and abilities."

"For those who already have a degree, MOOCs can provide knowledge in specific content that could enhance the employee's job performance."

"MOOCs best serve to provide education/training for a niche skill. I don't see them as an alternative to an accredited degree program."

"If you're going into a specified field (say Human Resources), taking MOOCs coursework in just Human Resources may be more beneficial then getting a Bachelor's in Business, which covers a wide variety of business fields."

“Better for working adults or parents, more flexibility for everyone, accessible for all regardless of ability to pay.”

“More specified to the job/certification rather than taking all extra courses to complete degree.”

“I think that coursework that is aligned with the actual work that will be performed can be better than the collection of depth and breadth classes that are part of college degrees.”

“This may be more suitable for personal choice of learning without requiring it, similar to self-reading for personal reasons.”

“MOOCs allow the student more flexibility to study precisely what they want to study, degree programs have requirements that may or may not be valuable to a particular employer.”

“Having a degree does not mean you have the requisite skill set. I think MOOCs coursework might prepare the candidate with the specific experience you are looking for.”

“More customizable to the job rather than possibly unrelated traditional college classes.”

“For a job applicant the degree is important. For continuing education within an organization the MOOCs could be beneficial.”

“I feel MOOCs would be helpful for employees wanting to learn more about specific topics or in need of a refresher.”

“MOOCs are very likely an excellent supplemental tool for individuals who have already completed a traditional 4 year bachelor’s degree.”

“MOOC coursework may be more timely -- covering latest and greatest technologies and methodologies which may not have gone mainstream academia, yet.”

The following comments are verbatim responses to the question, “Please comment on any perceived disadvantages of MOOCs over traditional degree-conferred college options.”

“It is a lesser alternative by any measure.”

“I dislike online degrees. Students cheat and it is far too easy to receive this type of education.”

“Perhaps MOOCs would create a lack of interpersonal communication skills due to a more technical environment.”

“Lack of ability to interact and learn from other students, fear of technology.”

“The authority that a degree provides over a course certification is a very big factor in consideration.”

“I believe that it may be more difficult to verify MOOC education. And I am not certain if individuals are evaluated for competency at the end of a MOOC as opposed to traditional college options.”

“I would say the major disadvantage is the lack of acceptance of the MOOC's coursework. Without educating employers on the benefits, MOOC's will not be accepted.”

“Lack of necessary communication and team work abilities/skills.”

“Doesn't seem to carry the same weight as a degree from an accredited university.”

“The only disadvantage to MOOCs is that you would not have any projects that require you to work with others.”

“Academic rigor, an al a carte approach might leave gaps in critical areas that would be part of a traditional curriculum.”

“If the applicants are not forced to work on team projects, there are some disadvantages in examining the applicants role in cooperative projects.”

“Human interaction. My industry is primarily customer service and teamwork which is not developed through the online experience.”

“No interpersonal collaboration. Ability to evaluate if in fact the applicant was the person who completed the course.”

“How do you know that person completed the coursework”

“Validity of learning taking place. I know of courses where there is no teaching taking place, just take a quiz or test and move on to the next level.”

“Companies may not perceive MOOC coursework to be as legitimate as traditional college coursework.”

"No face-to-face, no hands on experience incorporated, online courses tend to be easier than classroom courses and the person/student may not learn as much."

“Employers not having the understanding of how MOOCs course work and its benefits.”

"There is not accrediting body to ensure uniform learning."

“Difficult to evaluate the coursework and level of expertise compared to traditional college courses.”

“Some managers feel that class settings give better real life experience and interaction with classmates as well as professors.”

“Team skills and group work.”

“Fear of plagiarism.”

“Since it is a non-degree program I would not consider it as education. It would be considered as training.”

“Lack of collaborative education”

“MOOCs seem more difficult to verify that course covers material to prepare employee for workforce.”

“Accounting is very different because they MUST complete certain classes in order to sit for the CPA exam, they MUST have a degree. They MUST have 150 credits. For us, it wouldn't work.”

“Likelihood that the MOOCs' curriculum was sub-par to traditional schools”

“Assuming the college option is in person, skills such as collaborating with others and the knowledge you can gain by taking course that may not be applicable to your field of study may lack.”

“I am not sure there are currently standards that would ensure the employer of the quality of the education the employee received.”

“How do I know that the candidate with MOOC coursework and learning is the same as a degreed course?”

“MOOCs are buffet learning at best and a contaminated salad bar at worst. Without a thoughtful, purposeful and progressive learning structure (think degree plan) there is no confirmation that the MOOCs courses are related nor that they support overall learning objectives.”

“Not having face-to-face interactions with others in the class and with instructor”

“Lack of face to face interaction with both instructors as well as fellow students”

“Online course work that is not at least interactive with a faculty member lacks accountability and proof of comprehension via assignments and application of learnings, as well as lacking in social interaction which is vital in the workforce”

“Lack of social interactions.”

“Awareness about MOOCs is low - recruiters/hiring managers may not want to take the time to understand how this compares to a traditional degree.”

“MOOCs can be taken by anyone and there is no way to ensure it was taken by the actual applicant, but there is no grade to show proficiency”

“I believe there's benefit to being in a class with other students and collaborating with them and the professor face to face.”

“Employers need to understand MOOC education and develop job requirements to included so until then MOOC may not be viewed the same as a traditional degree program.”

“On-line courses do not teach with collaboration of students and practice delivering presentations to an audience.”

“Possibly less experience in teamwork and collaboration.”

“There is little known about them compared to traditional education & therefore the quality of the education tends to be questioned.

“Loss of hands on collaboration with classmates & instructor; lack of grading to test knowledge of class information, lack of verifiable educational credentials.”

“They aren't as well known by employers”

“There is no face to face interaction between the students and the professor.”

“It seems like there is no dedication needed for an MOOC as opposed to a traditional class where attendance and participation could be required. A traditional class can make a person more reliable.”

“Knowing if the person actually completed the class or someone else did - not the teamwork that college courses make you do.”

“If only 10% of individuals actually complete the course, do we really know what it took to successfully gain a credential/badge.”

“Unknown to employers-would be hard to convince a manager to think this was better than a traditional degree”

“At a hospital system, traditional degrees are required for many licensed positions.”

“Commitment level is less, not as accredited and not as vigorous to complete a full degree rather than just a course”

“Not widely recognized as a bona fide education source.”

“Possibly will not get tuition reimbursement from employer (if not accredited), difficult to substantiate and validate the certification.”

“Credibility will be the largest disadvantage in my opinion as opposed to traditional degree college option with credible universities.”

“Nothing like the experience of attending college in building well-rounded individuals.”

“It may be perceived as less valuable in the sense that it is offered to the masses therefore perhaps easier to accomplish”

“No classroom interaction/collaboration”

“Certain occupations, i.e. nursing and therapy require a certain degree program.”

“Less interaction, less social development, less learning how to debate with other students and exchange discourse.”

“Difficult to assess the quality of the course; interactive education is beneficial to all students”

“There is no accreditation and no degree achieved. It is unmonitored.”

“MOOCs are still not recognized with in industries and hiring managers. Many people have no idea of what a MOOC is and when you tell them they dismiss it. They are viewed in the same way online course were and sometimes still are thought of a decade ago.”

“Lack of understanding, new concept - challenge to articulate to others who have no knowledge of MOOCs”

“It is not accredited”

“Not vetted as well as an accredited college program.”

“No rigor to studies”

“Source is unaccredited, not common today.”

“Non-collaborative, perhaps not as rigorous”

“The social face to face interaction in a traditional degree are invaluable. That is more difficult with an MOOC.”

“Who is completing the work, what about social development, not the same experience online as face to face.”

“I don't feel MOOCs are as authentic and accredited as a traditional degree.”

“MOOC's have very little control over who is actually completing the coursework online. They lack collaboration and important face to face interaction that needs to be learned in order to function successfully in a team centered environment.”

“Not as well respected as traditional education channels.”

“Cheating and teachers are more lenient with this type of education.”

“Non-accredited”

“Physical interaction and classroom debate”

“Many traditional degrees are liberal arts; many MOOC students take too few liberal arts courses rendering the result of a technical certificate made up of many lesser technical certificates versus a degree.”

“Team collaboration - Human Interaction”

“Lack of brand recognition”

“No formal accreditation. Nothing to rely on regarding the quality of the course.”

“Lack of prestige. Difficult to assess what was learned.”

“Lack of collaboration and sharing of ideas”

“Hard to change perceptions of an earned degree”