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Is MOOC Madness Here To Stay? An Institutional Legitimacy Study Of Employers

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IS MOOC MADNESS HERE TO STAY?
AN INSTITUTIONAL LEGITIMACY STUDY OF EMPLOYERS

by

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A Dissertation

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

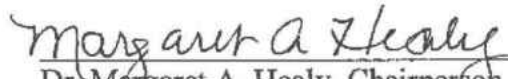
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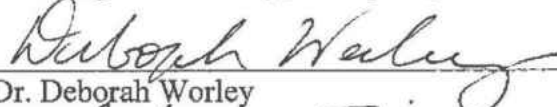
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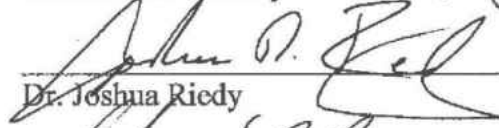
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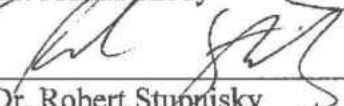
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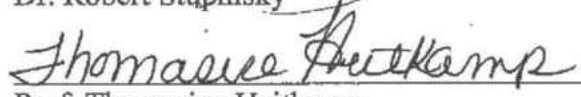
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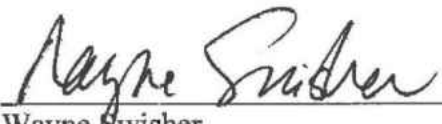


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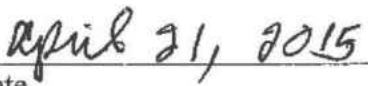


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This dissertation is being submitted by the appointed advisory committee as having met all of the requirements of the School of Graduate Studies at the University of North Dakota and is hereby approved.



Wayne Swisher
Dean of the School of Graduate Studies



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Alyssa Martin
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ABSTRACT

This dissertation aims to assess the degree of human resource personnel's acceptance of Massive Open Online Course (MOOC) providers. It is a critical part of understanding if MOOCs offer a viable and sustainable form of education because employer buy-in is essential to MOOCs' success, according to many who have studied this online learning phenomenon.

The sample for this study primarily was Society of Human Resource Management (SHRM) board and committee members located in metropolitan areas throughout the U.S, with 112 qualified participants. Participants were recruited through email and other online methods to take the survey. The survey had three sections, including demographic questions, a Likert-like section based on key MOOC characteristics, and a choice-based conjoint (CBC) exercise in which participants selected the most qualified job applicant from a pool of mock candidates—some with MOOC credentials.

The results of this study reveal that participants, though largely unaware of MOOCs, are generally receptive to them once learning of their attributes. However, participants still prefer traditional education and work experience more than MOOCs when screening applicants—a finding uncovered during the simulation exercise. Despite this preference for traditional employment credentials, participants showed statistically significant preference for MOOCs when combined with traditional education. These results have implications for many higher education stakeholders, including employers, students, and higher education institutions.

CHAPTER I

INTRODUCTION

Overview

In 2008, a pair of Canadian professors launched a free online course called Connectivism and Connected Knowledge (CCK08) (Downes, 2009; McAuley, Stewart, Siemens, & Cormier, 2010). This course was free to anyone with Internet access and enrollment was uncapped, allowing thousands to register. Never had a post-secondary institution offered such a course. Consequently, instructors Siemens and Downes needed to label their innovation, and they agreed on the term Massive Open Online Course (MOOC) (McAuley et al., 2010). The pair offered their MOOC in an effort to transform teaching and learning (Cupaiuolo, 2012). Their endeavor unquestionably influenced post-secondary education.

By 2012, Princeton, Stanford, the University of Michigan, the University of Pennsylvania, Harvard, and the Massachusetts Institute of Technology had begun to offer MOOCs (Coursera, 2012; edX 2012b). The sudden rise of this new learning phenomenon quickly captured the headlines of popular higher education periodicals. Indeed, in 2012 the *Chronicle of Higher Education* devoted an entire issue to the phenomenon, describing post-secondary education as in a state of “MOOC madness” (<http://chronicle.com/article/What-You-Need-to-Know-About/133475/>).

These free online college courses fostered concern among postsecondary educators because they were controversial. Stakeholders viewed them as both beneficial and detrimental to higher education. The *Chronicle* summarized MOOCs' benefits: "Aside from offering evidence of job skills, free online courses could provide another strategy for reducing costs and increasing access in states where higher-education budgets have been cut" (Mangan, 2012, para. 21).

Headlines also highlighted the drawbacks of MOOCs. Educators expressed concern that MOOCs might replace traditional classroom learning (Graham, 2012), that they threatened to upset the "college experience" (Manjikian, 2013), that they would serve to eliminate faculty and infringe on intellectual property rights (Pierson, Terrel, & Wessle, 2013; Snyder, 2013). Many administrators worried that MOOCs would upset the college and university business model (Jaschik & Lederman, 2013). Given the potential impact of MOOCs on higher education, the concern associated with them seemed warranted. However, the *Chronicle* also predicted that the hype would subside if higher education did not obtain buy-in from stakeholders, particularly employers: "The big question is whether employers who are used to scanning résumés for evidence of completed degrees will value certificates and badges earned through free courses. If so, many people believe these programs could pose competition for traditional degrees" (Mangan, 2012, para. 17). Scholars agreed that employer buy-in was an essential ingredient in MOOCs' success (Hollands & Tirthali, 2014a; Dellarocas & Van Alstyne, 2013). In fact, Marshall (2013) used Porter's Five Forces model to forecast the strategic challenges ahead for MOOCs, identifying employer approval as a necessity.

Then, in 2013 the *Chronicle* declared MOOC madness had ended, reaching this conclusion when reporting that MOOC providers like Coursera and Udacity already had changed their business models (Kolowich, 2013c). Many such entities originally sought profit by charging students optional fees to take MOOCs for college credit, but with few students willing to pay, some MOOC providers shifted their focus to selling the technology used to deliver these new online courses (Kelly, 2014; Kolowich, 2013c). The *Chronicle* also highlighted that MOOCs lacked credibility among higher education stakeholders. For instance, legislative efforts to tie college credit to MOOC completion have either failed or passed with marginal support in pockets throughout the nation (Kelly, 2014; Kolowich, 2013c; Rivard 2013a). Furthermore, the American Council on Education (ACE) has deemed only five of the hundreds of MOOCs offered credit-worthy (Kolowich, 2013a).

Several news agencies have echoed the *Chronicle's* pessimism—especially given the marginal percentage of individuals who complete MOOCs (Borden, 2014; Devlin, 2013; Friedman, 2014; Guthrie, 2013; Schuman, 2013). Yet, some reports conflict with the *Chronicle's* and others' eulogy. For example, *Education Week* reported on Coursera's small user-generated earnings in September 2013 (Molnar, 2013). The *Wall Street Journal* noted MOOCs' many pedagogical successes (Fowler, 2013). *The Economist* contended that a paradigm shift is occurring in which students are taking control of their learning (The Economist Intelligence Unit, 2013). The United Kingdom's Institute for Public Policy Research declared that MOOCs are part of an impending "avalanche" in higher education in which traditional postsecondary education is becoming unbundled and internationalized (Barber, Donnelly, & Rizvi, 2013). More

recently, *The Chronicle* featured an article contending that the MOOC revolution was not dead but rather nascent (Selingo, 2014).

MOOCs' sustainability may be supported by a new Harvard study. Using pre-course surveys on students' reasons for taking a MOOC, researchers found that MOOC completion rates, if compared to data on how many students intended to complete the course, are much higher than previously estimated. Meanwhile, a popular MOOC blog reported that MOOCs experienced significant growth during 2014, offering over 2400 courses from 400 colleges—an almost 80,000% increase from when courses were first offered in 2011 (Shah, 2014). These findings may be an indicator that MOOCs are a more effective means of educating than critics concluded (Reich, 2014) or may signal the faddish nature of MOOCs. The question is this: are MOOCs a fad already fading or higher education reform in its infancy? In other words, will MOOCs serve a viable role in postsecondary education's future?

Statement of the Problem and Purpose of Study

Perhaps one of the more intriguing aspects of MOOCs is the remaining uncertainty of their future. Hollands and Tirthali (2014a) have attempted to explore this uncertainty empirically, but this pair only collected speculative data on MOOCs' future from higher education insiders. This pair also studied why institutions are offering MOOCs, finding that the reasons relate to six goals, five of which appear to be coming to fruition as explained further in Chapter 2 (Hollands and Tirthali, 2014b). This may be a preliminary indicator of MOOCs' success and perhaps staying power. Radford et al. (2014) conducted a mixed-methods study on employer perceptions of MOOCs. The study was limited to a sample of employers in North Carolina and did not appear to use a

conceptual framework to guide survey design. The study found the majority of employers (57%) supported using MOOC platforms as a recruitment tool and even more found value in using MOOCs for professional development purposes (83%) (Radford et al., 2014). These findings suggest that MOOCs have viability if they can be validated nationwide.

In this dissertation, I will attempt to further the small body of research dedicated to MOOCs' role in higher education. Through use of institutional legitimacy theory, I examined if a national sample of key higher education stakeholders,¹ employers, have begun to legitimize and consequently institutionalize MOOCs. By engaging in this study, I aim to provide additional evidence of the role MOOCs may serve in postsecondary education both now and in the future.

Definition of MOOCS

Before introducing this study in more detail, I will define the term MOOC. It can simultaneously mean a number of things, but distinctions are necessary for purposes of pinpointing what I am studying. When referring to MOOCs, some are simply referring to an online class open to anyone worldwide with Internet access. Others are referring to conglomerates such as Udacity and edX—colleges, universities, and nonprofits that have pooled resources to offer MOOCs. Neither usage is necessarily incorrect, but MOOC terminology is ever-evolving. Due to such refinements one may apply concise terminology to key elements associated with this phenomenon.

For instance, Daniel (2012) made clear the distinction between the types of courses offered through MOOCs. According to Daniel (2012) cMOOCs are Connectivist

¹ Stakeholder is used throughout this dissertation in its most general sense, referring to a group with a vested interest in higher education—primarily employers in this study.

courses. This means they are organized around a general topic but are otherwise largely unstructured with collective knowledge-building through networking as the end goal and each participant establishing personal learning outcomes. xMOOCs are courses often described as behaviorist in nature, in which an expert defines learning outcomes, imparts course content, oversees learning progress, and awards some form of recognition to students who demonstrate acquisition. Students who take xMOOCs complete assignments, papers, and tests and are typically awarded with a certificate or digital badge upon course completion.

Below is a table developed by Hollands and Tirthali (2014a) highlighting the differences between the types of courses offered through this new online course delivery system.

Table 1. xMOOC vs. cMOOC Characteristics

xMOOCs	cMOOCs
Pre-determined, instructor-led, structured and sequenced weekly activities	“social, technical system of learning where the teacher’s voice is not an essential hub but a node in an overall network” (Siemens) [sic]
Short, content-based videos, readings, problem sets	Creation/exploration of topic area in “atelier” environment
Quizzes (auto-graded), peer-graded assessments	Unique products created by students (blog posts, images, diagrams, videos)
Discussion forum participation optional	Discussion forums, Diigo groups, Twitter and other social networking platforms are key
Delivered via third party platform provider (e.g., Coursera, edX)	Facilitator aggregates, reviews, summarizes and reflects on activity in daily/weekly newsletter
	“Boot-strapped”

Note. From *MOOCs: expectations and reality*, by F.M. Hollands and D. Tirthali, 2014, Center for Cost Benefit Studies: Columbia University Teachers College, p. 30. Reprinted with permission.

While cMOOCs fostered a new form of online learning, xMOOCs became the impetus for an unprecedented higher education phenomenon—major colleges, universities, and nonprofits partnered together to deliver xMOOCs free to anyone with Internet access worldwide (Daniel, 2012). The formation of MOOC providers (e.g., Coursera, edX, Udacity), as they are commonly called (Pappano, 2012; Haggard, 2013), was instrumental in igniting MOOC madness. This contention is based on the media attention MOOCs have, and continue to, receive. Given the new and unique nature of these partnerships and the attention that they have had commanded, I selected MOOC providers as the focus of this study. I will hereafter use the term MOOC or phrase MOOC provider to refer to these conglomerates. With the term MOOC now defined, in the next section I provide a detailed description of these new entities' core characteristics to determine if institutional legitimacy theory is applicable to them.

Conceptual Framework

Are MOOC Providers Institutions?

Considered the founding father of institutional legitimacy theory (Deephouse & Suchman, 2008), sociologist Max Weber defined organizations as possessing three components: systems closed or restricted to the admission of outsiders, systems in which specific orders or functions are guaranteed to be carried out by specific individuals, and systems overseen by an authority figure (Weber 1922/1978). While perhaps a rudimentary means of describing organizations as complex as a modern day university or an international corporation, this broad explanation appears to describe even fledgling attempts to operate in a coordinated capacity. Given the newness of MOOC providers, I relied upon Weber's characterization of organizations to determine if MOOC providers

meet this basic classification. This is the first step in determining if institutional legitimacy theory is applicable to MOOCs.

Consistent with Weber's definition of organization, MOOC providers are undoubtedly overseen by an authority figure. In fact, such authority figures were highly visible during the launch of edX. Indeed, Harvard and Massachusetts Institute of Technology (MIT) presidents held a joint press conference to announce the venture and to introduce edX's new president, Anant Agarwal (edX, 2012). Sebastian Thrun acts as a similar figure head for Udacity (Daniel, 2012; Salmon, 2012; Wired Business Conference, 2012). Andrew Ng and Daphne Koller, former colleagues of Thrun, serve as front people for Coursera (Friedman, 2012; Koller, 2012; Young, 2012).

Further solidifying MOOCs' categorization as organizations is evidence that their core functions are carried out by specific individuals. When describing their unique brands of MOOCs, edX and Coursera leaders emphasized the role of their elite faculty in the course development and delivery process (edX, 2012a; Koller, 2012). Thrun's faculty, who are also experts in their respective fields, play a slightly different but still clearly defined role, often working behind the scenes on course content. Meanwhile, as explained by Thrun, younger, camera-ready instructors relay Udacity course content (Young, 2013). This, argues Thrun (Young, 2013), makes the courses more relevant and relatable to Udacity students. Regardless of the approach used, MOOC providers have clearly ascribed their core function, pedagogy, to those with the assumed competency to carry it out effectively. This role ascription further confirms MOOC providers' status as organizations under Weber's definition.

Also in keeping with Weber's definition of organizations, MOOC providers operate in a system with restricted admission. One may initially refute this statement, deducing that any faculty member with a webcam can offer a MOOC. However, major MOOC providers operate as gatekeepers, determining which institutions they will admit into their folds. Both Coursera and edX have chosen to only partner with elite universities to offer MOOCs (Rivard, 2013b; Kolowich, 2013b). This selectivity forces many public universities and other institutions that are not members of the American Association of Universities to either find alternative methods of delivering MOOCs or remain out of the market.

Even if an institution is able to overcome access barriers associated with offering MOOCs, they typically must commit substantial financial resources to successfully offer courses through this new online delivery system. As Hollands and Tirthali (2014a) found, operating MOOCs costs institutions substantial sums ranging from \$39,000 to \$325,300. In short, participating in the MOOC movement usually is a costly endeavor and likely a barrier to participation.

Does Institutional Legitimacy Theory Apply to MOOCs?

In accordance with Weber's definition, MOOC providers function as organizations (with an identified leader, clearly defined roles, and in a closed system). Having established this, I move on to the question of whether or not institutional legitimacy theory applies to MOOCs. To answer this inquiry, the first critical question is if organizations are always classified as institutions. Institutional status is a higher threshold than organizational status. This inference may be drawn from much of the writing on institutional theory. For example, Greenwood et al. (2008) offer the following

definition of institutionalization: “more or less taken-for-granted repetitive social behavior that is underpinned by normative systems and cognitive understandings that give meaning to social exchange and thus enable self-reproducing social order” (p. 4).

The above definition is based in part on the work of Zucker (1983, 1988) who describes institutionalization as a process whereby certain actions, meant to address a social dilemma, are formalized collectively over time, legitimized, and ultimately taken for granted. The definition contains a claim that for an organization to be institutionalized, it must possess the following attributes. The society in which the organization operates must agree upon and understand the organization’s purpose, validating it through normative systems (e.g., formation of laws associated with it, exchange of money, etc.). Eventually, society comes to tacitly assume that an organization will carry out its prescribed function (Greenwood et al., 2008). For example, colleges and universities award degrees. Through such validation and tacit assumptions, an organization becomes institutionalized, reproducing social order and maintaining the status quo.

In my view, MOOC providers, though organizations with elite origins, have yet to fully achieve institutional status. I base my contention on the following evidence. The courses offered by MOOC providers have yet to be taken for granted by key stakeholders as a viable means of postsecondary education (Brodeur Partners, 2013). Furthermore, many scholars have made compelling arguments that MOOCs are a substantial disruption to the social order of higher education, not a means of reinforcing of this system. This is because students take them for free, a shift that potentially could democratize knowledge

once only available to the privileged (Lawton & Katsomitros, 2012). However, MOOCs have yet to serve as a driver of educational equality (Hollands & Tirthila, 2014a).

Finally, only a few normative systems have expanded to embrace services offered by MOOC providers. The United Nations is one example of a normative system (government) supportive of MOOCs (UNESCO, 2012). Yet, fledgling attempts by legislators to garner support for MOOCs have failed or passed with only marginal support in the U.S. (Kolowich, 2013c; Rivard, 2013a). Meanwhile ACE, renowned for recommending nontraditional courses for college credit, has identified only five xMOOCs worthy of this designation (Kolowich, 2013a). In addition, several higher education periodicals have reported on failed attempts by institutions to entice students to pay college credit fees when taking MOOCs (Kolowich, 2013c; Molnar, 2013). In short, MOOC providers are in their infancy stage of institutionalization. This argument is supported by Suchman's (1995) theoretical framework of institutional legitimacy.

Suchman's Institutional Legitimacy Theory

In 1995, Suchman provided a comprehensive synthesis and analysis of organizational legitimacy research and theory, suggesting a means of categorizing this body of work. He contended that this step was necessary to prevent future research on organizational legitimacy from becoming "a chorus of dissonant voices, fragmenting scholarly discourse and disrupting the flow of information from theorists to practitioners" (Suchman, 1995, p. 572). In other words, Suchman's goal was to unify legitimacy theory under the same umbrella while allowing for variation in the perspectives and methods used. To begin, he proposed a broad definition of legitimacy: "Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or

appropriate within some socially constructed system of norms, values, beliefs, and definitions” (Suchman, 1995, p. 574). Suchman’s definition of legitimacy is intentionally general. It highlights many of the core assumptions undergirding organizational legitimacy studies and theory without assigning agency.

The definition emphasizes that legitimacy is socially constructed based on an understanding or assessment of acceptability, meaning that it is subject to change with context, including shifts in societal norms and variations in assessment criteria over time. However, the definition does not specify who formulates assumptions or perceptions about legitimacy. That decision, argues Suchman (1995), is left to the theorist or researcher and is the determining factor in which camp of organizational legitimacy theory his/her work is then classified.

A theorist must decide if s/he will work in the (a) “strategic” camp in which legitimacy is viewed as an almost tangible construct that organizational leaders can measure and manipulate to serve their needs or (b) the “institutional” camp in which legitimacy is viewed as a fluid construct to which an organization can only react. Under this latter camp, organizations become cultural byproduct or “institutionalized.” Regardless of which perspective a researcher chooses, Suchman explains that all legitimacy theorists assume the existence of, and attempt to help further validate and refine, overarching patterns of how legitimacy is gained, maintained, and/or restored.

Suchman’s 1995 work was neither the first attempt to define legitimacy nor the first attempt to develop typologies of legitimacy studies. It built on the work of many scholars, including Weber (Deephouse & Suchman, 2008; Weber, 1922/1978), Parsons (1956, 1960), Dowling and Pfeffer (1975), Pfeffer and Salancik (1978/2003), Meyer and

Rowan (1977), Zucker (1983, 1988), Scott and Meyer (1991), DiMaggio and Powell (1991), Ashforth and Gibbs (1990), Aldrich and Fiol (1994), Stryker (1994), and Scott (2014). Providing an overview of each scholar's contribution to organizational legitimacy theory would prove only marginally useful to this chapter. Therefore, I have summarized these contributing works in Appendix A.

Suchman's taxonomy (1995) is widely regarded as one of the most comprehensive synthesis of the work conducted in the field of organizational legitimacy from inception to the mid-nineties and beyond. This claim is evidenced by the sheer number of studies that still use Suchman's taxonomy as a framework (Bansal & Clelland, 2004; Black, 2008; Cheng, 2010; Cashore, 2002; Drori & Honig, 2013; Emtairah & Mont, 2008; Kuratko & Brown, 2010; Lamberti & Lattieri, 2011; Sathe, 2010; Tornikoski, 2007). Scholars have made few revisions or additions to Suchman's taxonomy since 1995 (Deephouse & Suchman, 2008; Scott, 2014), with the exception of scholars who have reframed some or all of Suchman's broad tenets to make them industry specific (Archibald, 2004; Bansal & Clelland, 2004; Vergne, 2011). Another exception is Drori and Honig's (2013) paper, in which the researchers argue that a complete legitimacy study must examine both internal and external factors. Suchman's taxonomy is comprehensive—expansive both in the breadth and depth of the institutional theory bolstering it—and highly regarded among organizational legitimacy scholars. Therefore, I intend to use this taxonomy.

Legitimacy Forms and Actions

To further refine the conceptual framework for this study, I must dig deeper into Suchman's (1995) legitimacy theory taxonomy. This framework instructs that selecting

the strategic or institutional camp is only the first step in carrying out a clearly focused legitimacy study. Researchers and theorists must be explicit about the legitimacy form and action they intend to study. Legitimacy forms include pragmatic, moral, and cognitive classifications while legitimacy actions include gaining, maintaining, and repairing. None are mutually exclusive. In fact, argues Suchman (1995), they often occur simultaneously, a concept that I will revisit shortly.

Legitimacy actions have very accurate labels, denoting the exact action they are meant to describe—the attempted acts of gaining, maintaining, and repairing legitimacy. The degree to which an organization focuses on these actions, argues Suchman, varies by temporality in an organization’s “lifespan.” The actual process of gaining, maintaining, and repairing legitimacy, argues Suchman, varies by organization based on the degree to which an organization relies on the various forms of legitimacy— pragmatic, moral, and cognitive.

Suchman describes pragmatic, moral, and cognitive legitimacy as follows. Pragmatic legitimacy, in its simplest form, based on the research of Dowling and Pfeffer (1975) and Wood (1991), is a direct exchange between an organization and audience. The audience (“constituencies”) constantly assesses the value of the item that they receive in the exchange (Suchman, 1995). Suchman contends that many with institutional legitimacy leanings tend to analyze pragmatic legitimacy through the lens of “influence legitimacy.” Influence legitimacy occurs as a result of an organization speaking to constituents’ broader interests such as when an organization “adopts constituents’ standards of performance as its own” (Suchman, 1995, p. 578).

While pragmatic legitimacy is driven by an audience cost-benefit analysis, moral legitimacy, argues Suchman (1995) based on the work of Aldrich and Fiol (1994) and Parsons (1960), involves constituents' value judgments about the organization. Is the organization inherently good? Is it beneficial to society? These assessments are based upon audiences' "socially constructed value system" (Suchman, 1995, p. 578). Audiences focus on a variety of factors when making these assessments, including a character assessment of an organization's leadership, structure (e.g., philosophy and mission), processes and procedures, and outputs (Suchman, 1995).

The final form of legitimacy is focused not on a form of evaluation (the basis of pragmatic and moral legitimacy) but simply upon knowing and tacitly accepting. In fact, knowing and tacit acceptance are the two types of cognitive legitimacy. They are formally termed comprehensibility and taken-for-grantedness by Suchman (1995). In other words, constituencies view the organization as an inherent means of organizing the chaos of everyday life (comprehensibility) and sometimes view an organization as essential to carrying out this function, so much so that constituencies may view the organization as the only actor carrying out this role both now and in the future (taken-for-grantedness). Scholars who have focused specifically on cognitive legitimacy include Aldrich and Fiol (1994), DiMaggio and Powell (1991), and Zucker (1983).

Suchman (1995) resists describing the various forms of legitimacy—pragmatic, moral, and cognitive—as occurring hierarchically. He however contends that the various forms of legitimacy vary in degree of attainability. Cognitive is the most elusive and a sign that an organization has reached the peak state of legitimacy. Despite the elusive nature of cognitive legitimacy, Suchman argues that all three forms of legitimacy are

likely present at each stage of an organization's development (Suchman, 1995). In other words, pragmatic, moral, and cognitive legitimacy are detectible at the gaining, maintaining, and repairing stages, sometimes in limited quantities.

Suchman also argues that researchers should declare at the onset of their studies which legitimacy stage and form they intend to study. MOOCs, because they are in the process of becoming institutionalized by employers, are *gaining* legitimacy. Therefore, this dissertation focuses on this legitimacy formation stage. Because my study is centered on this early acquisition process, it only explored attributes associated with pragmatic and moral legitimacy since cognitive legitimacy, argues Suchman (1995), is minimal during the organizational infancy phase. This is an argument that will be supported in Chapter 2 when I analyze studies on the legitimacy gaining process. In other words, Chapter 2 verifies the predominance of pragmatic and moral legitimacy at the gaining stage and the scarcity of cognitive legitimacy during this phase.

Chapter 2 also explores ways in which these forms of legitimacy are actualized. As I uncovered these means of actualization, the theoretical influences that shaped Suchman's (1995) taxonomy become apparent. Indeed, two of Weber's (1922/1978) criteria for achieving organizational legitimacy—organizational charisma and traditional legitimization—help explain why actions like network formation and communication strategies are an essential part of gaining pragmatic and moral legitimacy. Therefore, as my analysis of legitimacy forms deepened in Chapter 2, I decided to rely not only on the theoretical work of Suchman but also Weber to better understand how legitimacy is gained.

Research Questions

Using Suchman's (1995) institutional theory of gaining legitimacy, this study examined if employers (i.e., external stakeholders) are beginning to legitimize MOOCs as a viable form of postsecondary education. Given this goal, my specific research questions were as follows:

- Do human resource personnel's perceptions of MOOC providers' legitimacy differ by age, geographic sector, prior knowledge of MOOCs, industry, education acquisition method or education level?
- What are the barriers to MOOC providers becoming legitimized and consequently institutionalized by human resource personnel, if any?
- Do human resource personnel prefer job applicants that have a combination of traditional employment credentials and MOOC credits more than applicants with traditional employment credentials alone?

By breaking down demographic data and performing statistical correlation tests, my goal was to detect underlying patterns or trends related to MOOC acceptance. Then, taking the answers to above three questions in aggregate, I aimed to draw broader conclusions about if, and to what extent, human resource personnel are legitimizing MOOCs.

Method

I measured responses to this study's research questions quantitatively. To accomplish this, I developed a survey instrument based upon interdisciplinary and distance education literature on the processes and constructs involved with gaining legitimacy. Participants were recruited through email invitations sent to Society for

Human Resources (SHRM) officers and committee members in major metropolitan areas throughout the U.S. and through social media.

The survey instrument was cross sectional, which only allows measurement of participants' responses during a single point in time and estimates certain parameters based on participant self-reported responses (Kelley, Clark, Brown, & Sitzia, 2013). The survey instrument contained two parts. The first portion of the survey asked participants to rate their acceptance level of MOOC providers based on a series of characteristics using a Likert-like scale. The second portion of the survey contained a choice-based conjoint (CBC) exercise.

CBC analysis is traditionally used in market research to present participants with a competitive set of "products," requiring them to choose between them (Bakken & Fraiser, 2006). It requires the researcher to define the attributes s/he aims to measure, breakdown these attributes into levels, and then create hypothetical products for purposes of comparison. In the cases of this study, the CBC exercise presented participants with mock pools of job applicants (some with MOOC credentials) and asked them to select from each pool the applicant who, based on qualifications, should advance in the participants' own hiring process.

Delimitations

Perhaps this study's most significant delimitation is that only employers participated, specifically SHRM officers and committee members. Employers are but one higher education stakeholder. However, they are a group of essential stakeholders if MOOC providers aim to gain legitimacy according to Marshall (2013) and Dellarocas and Van Alstyne (2013). That said this study is not an attempt to minimize or ignore the

important role of internal legitimacy—support of college faculty, staff, and administrators—in the institutionalization of MOOC providers. I simply view internal legitimacy as less essential to the current stability of MOOC providers than the support of employers. This viewpoint was shaped by the sheer number of higher education, business, and economic experts who have identified the employers' role as essential to the continuation of MOOCs (Adams, 2013; Booker, 2013; Clark, 2014; Hollands & Tirthali, 2014a; Kolowich, 2013c).

Additional delimitations were as follows. The human resource personnel participating in this study live in major metropolitan areas. They accessed the study via email invitations and links posted on social media sites. Consequently, this study did not measure if MOOCs are gaining legitimacy among employers in small cities or rural areas. In addition, since recruiting occurred over the Internet, results reflect the views of participants that use email and/ or otherwise have a predilection for use of online technology.

Limitations

In addition to the delimitations associated with my population, as I attempted to recruit participants, I anecdotally learned of a possible limitation associated with my target population. One prospective participant contacted me upon receiving my survey invitation to explain that his SHRM chapter receives at least three such survey requests per week. Consequently, he warned that response rates to my invitation would likely be low. Survey request inundation may have been a factor in this study's low response rates.

This study's instrumentation further limited results. It relied on self-reporting and was cross-sectional in design. Self-reporting poses the potential for participant bias, and

the cross-sectional design precludes measuring if participant opinions are sustained over a period of time. Furthermore, as a result of my findings in Chapter 2 on how to measure legitimacy, the Likert-like portion of survey instrument measured respondents' acceptance of MOOC providers' communication and network formation strategies. These strategies, by design, characterize MOOC providers favorably. Therefore, by including MOOCs' communication and network formation strategies in my instrument, my results may have been artificially skewed.

While the CBC portion of the instrument helped balance the skewed Likert-like data, it too had limitations. The CBC exercise provided no indication of the extent to which a selected candidate was preferred in relation to the others and offered no insight on participants' rationales for choosing one candidate over another (Orme, 2013). Data collected during the CBC exercise only showed correlations between certain candidate qualifications and participant preference.

Finally, a limitation of this study was that MOOCs currently cannot be substituted for certification and/or licensure needed to enter certain professions (e.g., nursing or teaching). Also, MOOCs may not be viewed as a substitute for postsecondary education but rather a form of continuing education/workforce development as suggested by the Radford et al. study (2014). To surmount the former part of this limitation, the CBC exercise contained clear directions explaining that participants are screening mock applicants for a position *not* requiring special certification or licensure. The latter part of this limitation may serve as the basis for additional study.

Theoretical and Practical Contribution

This study applied institutional legitimacy theory to an emerging form of postsecondary education with the potential to disrupt the existing institution of higher education. It therefore contributed both practically and theoretically to institutional legitimacy theory and to an understanding of MOOCs providers' potential function in higher education. More specifically, it served to further test theories and findings to date on how an organization gains legitimacy, particularly within the context of postsecondary education. This is information that could be valuable to individuals interested in introducing higher education reform initiatives in the future and those generally interested in the processes of gaining legitimacy in the education sector. It also served to help replace speculation about the possible role of MOOC providers in postsecondary education, building on the work of the work of Radford et al. (2014). This may help postsecondary administrators better strategize about how to respond to MOOCs, deciding matters such as whether or not to join this online education movement.

Organization of Research

This dissertation is organized in the following manner. Chapter 2 reviews empirical studies on institutional legitimacy theory, with a specific focus on literature that explores forms of legitimacy necessary for external stakeholders to begin to legitimize an organization—pragmatic and moral. In addition, through this review of literature, I identify how pragmatic and moral legitimacy are actualized through activities such as communication strategies and network formation—a concept tied to two of Max Weber's (1922/1978) threefold principles of legitimacy: organizational charisma and traditional legitimization. This chapter then contains analysis of higher education literature that

directly or indirectly studies institutionalization with an emphasis on legitimization of online education and empirical studies on MOOCs. At the conclusion of Chapter 2, I refine my explanation of how the process of gaining legitimacy is studied, which helped inform my development of an instrument to measure whether employers are legitimizing MOOCs.

Chapter 3 describes this study's survey instrument in detail, including the constructs measured and information on the survey's reliability. It also provides a detailed overview of the methods used to conduct my study. More specifically, this chapter contains an overview of why I selected SHRM leaders as participants in this study, method of participant identification and survey dissemination, anticipated issues with validity of results, and statistical methods used for analyzing data collected.

In Chapter 4, I present and analyze my statistical findings of the survey results. Finally, in Chapter 5, I will discuss the theoretical and practical implications of my findings, commenting on the potential short and long-term impact and role MOOC providers will play in higher education and explaining how my study has contributed, in a broader sense, to the empirical work on gaining legitimacy.

CHAPTER II

LITERATURE REVIEW

In Chapter 1, I charted the rise of and key controversies associated with Massive Open Online Courses (MOOCs). I contended that one of the more intriguing aspects of MOOCs is the uncertainty of their purpose and function. Some postsecondary education officials and commentators have described MOOCs as a disruptive innovation to higher education (Barber, Donnelly, & Rizvi, 2013; Lawton & Katsomitros, 2012, and others have dismissed MOOCs as merely a passing technological fad (Devlin, 2013; Guthrie, 2013; Jaschik & Lederman, 2013; Kolowich, 2013c; Schuman, 2013). As I highlighted, to date, only a few studies have attempted to respond to these conjectures empirically. Of these studies, one has attempted to measure employer perceptions of MOOCs but only with a sample of participants from North Carolina and seemingly without a conceptual framework to guide the study (Radford et al., 2014). This dissertation takes a critical step in helping to fill research gaps on MOOCs' role in higher education.

More specifically, through the use of selected parts of Suchman's (1995) taxonomy of legitimacy theory, I examine whether MOOC providers are gaining legitimacy among employers. In other words, one goal of this study is to use existing research on how organizations gain legitimacy from external stakeholders (i.e., those who have a vested interest in higher education but operate outside of it) to measure MOOCs providers' future trajectory in the postsecondary education market. This study is

consequently aimed at contributing to applicable bodies of scholarship both theoretically and practically. It may potentially further the body of research on institutional legitimacy theory, and at least partially, identify the role MOOC providers may play in relation to postsecondary education. These findings may assist existing postsecondary institutions with formulating a response to the phenomenon the *Chronicle* once called “MOOC madness” (<http://chronicle.com/article/What-You-Need-to-Know-About/133475/>).

One goal of this chapter is to provide a review of empirical literature on the process whereby organizations gain legitimacy from their external stakeholders (Suchman, 1995). The chapter first examines this body of work broadly from an interdisciplinary approach and then focuses specifically on studies of gaining legitimacy within a higher education context. When reviewing such higher education studies, I narrowed my focus to research directly or indirectly centered on the process whereby distance education gained legitimacy because distance education shares some commonality with MOOCs. Finally, this chapter provides a brief summary of empirical MOOC research to demonstrate the extent to which scholars have studied this new form of education with special emphasis on studies that do so through an organizational lens.

This review of literature helped (a) guide my approach to the study at the outset, (b) situate it within the larger body of institutional legitimacy research; (c) highlight past findings of how legitimization is gained in higher education, specifically with regard to the introduction of a new technological innovation; (d) identify past methodical approaches to the topic of gaining institutional legitimacy; and (e) pinpoint shortcomings of such studies. This chapter therefore first contextualizes and validates the need for my study. Secondly, the review of literature helped identify the constructs often associated

with, and methods used to study, gaining legitimacy. This analysis informed the research methods and instrument presented in Chapter 3.

Review of Conceptual Framework

As explained in Chapter 1, I used portions of Suchman's (1995) taxonomy of legitimacy theory as the basis for my study. To review, Suchman (1995) contends that those conducting organizational legitimacy studies must first decide on their theoretical approach. A researcher may situate his/her study in the strategic camp, in which one examines the internal workings of an organization to assess the methods it uses to control legitimacy. Alternatively, one may choose the institutional camp, in which one studies external stakeholders to assess the degree to which an organization is successfully reacting to its environment. I situated this study in Suchman's institutional camp because of the growing body of research demonstrating the impact of external, societal pressures on higher education (Leydesdorff & Etzkowitz, 1996) and because of the increasing number of higher education scholars and commentators contending that employer buy-in is essential to the sustainability of MOOC providers (Marshall, 2013; Dellarocas & Van Alstyne, 2013).

Suchman (1995) also contends that legitimacy theorists must be intentional about the legitimacy action being studied—gaining, repairing, or maintaining. Furthermore, they must be cognizant of the various legitimacy forms that may emerge as part of a study's findings—pragmatic, moral, and/or cognitive. Because MOOCs are an emerging organization, I examine the process whereby they are gaining legitimacy. As postulated in Chapter 1, the latter form of legitimacy—cognitive or taken for grantedness—is scant during the gaining stage, a contention validated through the review of literature below.

Therefore, this chapter demonstrates why I omitted cognitive legitimacy from my conceptual framework and focused only on pragmatic and moral legitimacy.

This literature review also reveals how pragmatic and moral legitimacy are actualized. By probing deeper into these legitimacy forms and identifying actions associated with their emergence, the theoretical roots of Suchman's (1995) taxonomy begin to surface. Indeed, one form of actualizing pragmatic legitimacy-network formation--links to a concept introduced by Weber (1922/1978). When presenting his criteria for legitimacy, Weber (1922/1978) contended that the organization must have charisma. This form of legitimacy emerges if stakeholders view a figurehead as "extraordinary and treated as endowed with supernatural, superhuman, or at least specifically exceptional powers or qualities" (p. 241). Meanwhile, the communication strategies used to gain legitimacy, as revealed through the literature review that follows, are better understood when placed in relation to Weber's definition of traditional legitimization. Weber (1922/1978) argued that this form of legitimacy involves relying on traditional norms and values to gain acceptance, and indeed, studies focused on nascent organization's communication strategies reveal that their messaging is laden with assumptions about stakeholder norms, values, and expectations. I therefore used portions of Weber's theory on legitimacy to help explain why certain patterns of actions consistently emerge in the literature and are necessary for gaining legitimacy.

Interdisciplinary Studies on Gaining Legitimacy

The interdisciplinary studies on gaining legitimacy presented in this chapter range in subject matter. For example, one study below identified the steps involved with a nonprofit regulatory agency entering into government controlled environments (Cashore,

2002; Cashore, Auld, & Newsom, 2003) while another examined the emerging functional food market in Italy (Lamberti & Lettieri 2011). Despite this wide range of topics, these empirical studies share much commonality. They all focus on at least one of the three action steps that are associated with gaining legitimacy. These three action steps are as follows: (a) finding the appropriate balance of pragmatic and moral legitimacy, (b) network formation, or (c) communication strategies. Many of the studies also minimize the need for cognitive legitimacy. For the purpose of summarizing and analyzing these studies, I have therefore organized them thematically based on the action step that they examine.

Before presenting this literature, I must point out that the interdisciplinary body of empirical research on legitimacy is quite expansive. I, therefore, typically restricted my discussion to studies focused on external stakeholders that also address gaining legitimacy—both components of the conceptual framework used in this study. In a few cases, I highlight studies that focus on internal legitimacy strategies (managerial legitimacy). I chose this approach simply because internal legitimacy studies were sometimes the only studies conducted on the sub topics addressed below, or they reinforce the findings of research aimed at studying external stakeholders.

Pragmatic and Moral Legitimacy Studies

To begin this analysis, I reviewed studies focused on balancing pragmatic and moral legitimacy since almost all of them utilize the same conceptual framework as this dissertation. Many of the studies in this category take a qualitative, specifically case study, approach (Cashore, 2002; Cashore, Auld, & Newsom, 2003; Claasen & Roloff, 2012; Durocher, Fortin, & Côté, 2007; Lamberti & Lettieri 2011; Persson, Lundberg, &

Andresen, 2011; Soobaroyen & Ntim, 2013; Vestrum, Rasmussen, & Carter, 2014). I highlight the methods used in each of the studies primarily because of the problems these methodical choices pose within a legitimacy framework.

Legitimacy theory, by its very nature, assumes that a large number of stakeholders have bought into an organization, helping to make it sustainable. Yet, because none of the studies on pragmatic and moral legitimacy above are quantitative, they may not fully support the underlying supposition that the organizations studied actually gained legitimacy. Some of the scholars conducting the studies acknowledge this shortcoming and encourage the use of their findings for further quantitative research (Cashore, 2002; Durocher, Fortin, & Côté, 2007; Lamberti & Lettieri 2011; Soobaroyen & Ntim, 2013).

Despite the shortcomings of the studies cited above, what they achieve, in aggregate, is a description of how legitimacy is gained. Illustrating this point, Durocher et al. (2007), conducting a study focused on reasons why stakeholders participated (or failed to participate) in development of standards for financial statements, found that these individuals, as part of making a participation decision, assessed the following: The stakeholders analyzed the extent to which they benefited from the exchange associated with participation (pragmatic legitimacy). They considered the extent to which they gained influence through participation (pragmatic legitimacy). They assessed the extent to which establishment of the financial standards being developed impacted public interests as a whole (moral legitimacy). They also thought about the extent to which the standards have mechanisms for ensuring fairness and equal participation among stakeholders (conformed to social and moral standards of the environment). Durocher et al. also found that when a stakeholder perceived the standards-setting process as

possessing cognitive legitimacy, their level of participation decreased significantly. This was due to the fact that they deemed their participation no longer necessary—the stakeholders viewed the organization as self-sustainable.

Cashore (2002) developed a list of pragmatic and moral indicators that stakeholders use to assess whether an organization is legitimate in further detail. By studying the process by which a non-state market-driven governance system (NSMD) gains legitimacy through the lens of those who consented to be governed by it, Cashore concluded the following. An organization must not only offer a benefit to external stakeholders, but also stakeholders must feel they are *achieving* something by buying into the organization (e.g., increased market access). In other words, gaining pragmatic legitimacy means more than simply exchanging goods with stakeholders. These “consumers” must somehow receive validation that they obtained an upgrade.

Stakeholders must also develop a sense that the organization conforms to their way of transacting business and to their value systems (Cashore, 2002; Vestrum et al., 2014). Indeed, Cashore cited one example in which a stakeholder refused to conform to the NSMB unless the organization fully encapsulated the stakeholders’ value system, and Vestrum et al. (2014), studying establishment of musical festivals in rural Norway, found that a prerequisite for gaining legitimacy was garnering the support of the local government officials and ensuring compliance with municipal codes.

Yet, even if stakeholders view an organization as both moral and ethical, they tend to withhold moral legitimacy if they are unable to see the intrinsic societal good of an organization; therefore, organizations must devise awareness and outreach strategies to positively impact the community or society as a whole according to Cashore (2002).

Cashore's findings may indicate a need to include components on achievement, moral similitude, and perceptions of societal outreach and/or benefits in future legitimacy studies.

While Cashore's (2002), Vestrum et al.'s (2014), and Durocher et al.'s (2007) studies provide general guidance on the types of items that should be considered when measuring how external stakeholders begin to legitimize nascent organizations, Claasen and Roloff (2012) measured how much weight stakeholders place on both pragmatic and moral legitimacy. They did so by conducting 42 interviews of stakeholders impacted by De Beers diamond mines in Namibia. The pair uncovered that moral legitimacy was a much higher priority for stakeholders than pragmatic, with 73% of stakeholders' comments centered on ethical issues and only 16% focused on pragmatic legitimacy. Stakeholders made cognitive legitimacy statements only 5% of the time. These outcomes may, as the researchers point out, be attributable to environmental factors, with few participating stakeholders benefitting directly from De Beers' presence in Namibia. Nonetheless, the findings are instructive because, like the other studies included in this section, they minimize the role of cognitive legitimacy.

Network Formation and Legitimacy Studies

While Claasen and Roloff's (2012) study downplayed the importance of pragmatic legitimacy in relation to moral legitimacy, several interdisciplinary legitimacy studies on network formation emphasize the importance of pragmatic legitimacy during the gaining stage, perhaps calling into question Claasen and Roloff's findings (Chang, 2004; Cheng, 2010; Rao, Chandy, & Prabhu, 2008; Higgins & Gulati, 2003). All of these studies found that organizations headed by leaders with powerful networks were

successful at gaining legitimacy (Chang, 2004; Cheng, 2010; Rao, Chandy, & Prabhu, 2008; Higgins & Gulati, 2003).

Higgins and Gulati's (2003) research is perhaps most elucidating in this regard. This team analyzed the correlations between prestige and affiliations of key leaders in new organizations, finding a strong link between the affluence of upper echelon and IPO success. The study suggests that external stakeholders analyze a new organization's upper echelon to determine whether to lend their support. Stakeholders only appear to join the network if advantageous personally or professionally.

The type of behavior uncovered in Higgins and Gulati's study on network formation (2003) is consistent with both Suchman's (1995) description of pragmatic legitimacy and Weber's (1922/1978) definition of organizational charisma. Indeed, Suchman (1995) describes pragmatic legitimacy as occurring when stakeholders assess the value of the item that they receive in the exchange. As Higgins and Gulati's study (2003) reveals, in the case of networking, stakeholders are indeed engaged in such an exchange, analyzing if becoming affiliated with a nascent organization's leadership is advantageous. This focus on assessing the affluence of a leader's network affirms Weber's (1922/1978) contention that organizational charisma, or a view by external stakeholders that an organization's leader is somehow dynamic, is essential to legitimization. Given network formation's link to legitimacy theory and the volume of work uncovering its presence during the gaining stage (Chang, 2004; Cheng, 2010; Rao, Chandy, & Prabhu, 2008; Higgins & Gulati, 2003), it should not be overlooked when studying early stages of legitimization.

Measuring network formation's impact on legitimacy; however, is a difficult task. In the majority of the network formation studies I analyzed, legitimacy is studied by measuring a very broad indicator of an organization's popularity or success, calling into question whether such studies achieve their intended purpose. For instance in Rao, Chandy, and Prabhu (2008), legitimacy is measured by the amount of press coverage biotech companies received. In Cheng's (2010) and Higgins and Gulati's (2003) studies, legitimacy is initially determined by the rate at which organizations acquire initial public offering status (IPO) and then based on the success of the IPO.

The question raised by the above studies is whether press coverage, IPO attainment, and IPO success confirm the presence of legitimacy. Arguably, under Suchman's (1995) broad definition of legitimacy, these means of measuring the construct are sufficient. However, three of the above studies (Chang, 2004; Cheng, 2010; Rao, Chandy, & Prabhu, 2008) acknowledge the narrow limits of the metrics used. Therefore, these researchers suggest expanding their studies to include other metrics, such as profit and losses, to validate legitimacy.

Legitimization through Communication

Studies analyzing the relationship between network formation and legitimacy clearly attempt to assess a correlation between the two constructs. Meanwhile, studies analyzing communication's role in the legitimization process typically assume the presence of legitimacy or marginalize its importance, focusing instead on patterns of legitimacy rhetoric that emerge from document analysis or interviews. Therefore, much of the scholarship on communication's role in legitimization has little direct correlation to this dissertation. Still, a few legitimacy studies that address communication patterns

during the gaining stage or periods of organizational change expand on the literature dedicated to how legitimacy is actualized (Bansal & Clelland, 2004; Dumitru, Albu, Dumitru, & Albu, 2014; Lurtz & Kreutzer 2014; Soobaroyen & Ntim 2013, Suddaby & Greenwood, 2005).

For example, Suddaby and Greenwood (2005) studied communication's role in a proposed merger between major accounting firms and law firms by analyzing transcripts from an American Bar Association (ABA) hearing on the matter. They found that the process for gaining legitimacy begins by challenging former assumptions, which reveals contradictions associated with conventional logic. Once these logic gaps are revealed, rhetoric on change often begins. It involves linking the proposed innovation with broader cultural constructs (e.g., introducing a new product is linked to the economic benefits). The process whereby change occurs, as uncovered by Suddaby and Greenwood, is evident in almost all of the empirical legitimacy literature reviewed in this dissertation. Stakeholders assess the validity of an emerging organization based on its contributions to current constructs (e.g., the economy, social welfare, personal value systems). In other words, Suddaby and Greenwood appear to have uncovered one of the overarching patterns of accepting change.

While Suddaby and Greenwood (2005) may have identified a generalizable aspect of gaining legitimacy, their remaining findings may not be as broadly applicable. The pair found that stakeholders used only pragmatic legitimacy to advocate for a merger between accounting and law firms. Those opposed to the merger used moral and cognitive legitimacy, appealing to professional histories and ethics, in an effort to make a case for the status quo. The finding that those advocating for change used only pragmatic

legitimacy is somewhat surprising. This is because studies on the roles of pragmatic and moral legitimacy (Cahsore, 2002; Cashore, Auld, & Newsom, 2003; Claasen & Roloff, 2012; Durocher et al., 2007; Lamberti & Lettieri 2011; Persson, Lundberg, & Andresen, 2011; Soobaroyen & Ntim, 2013), demonstrate a need for both pragmatic and moral legitimacy when attempting to gain legitimacy. Advocates of the merger in the Suddaby and Greenwood (2005) study used only pragmatic legitimacy to successfully lobby for this new partnership, contradicting earlier findings in this literature review.

Suddaby and Greenwood (2005) are not the only research team to uncover communication patterns inconsistent with the body of literature on how legitimacy is gained. Dumitru, Albu, Dumitru, and Albu (2014), studying pharmaceutical industry rhetorical techniques at both a multinational and national market level, found that at the national level, rhetoric was primarily pragmatic in content. At the multinational level all three forms of legitimacy—pragmatic, moral, and cognitive—were present.

The outcome of Ruebottom's (2013) research is perhaps even more unexpected than Suddaby and Greenwood's (2005) and Dumitru et al.'s (2014) conclusions. Ruebottom (2013) uncovers an organization's reliance on rhetorical strategies laden with moral and cognitive legitimacy in a 10-case study analysis of gaining legitimacy. Indeed, by engaging in interviews with Toronto social enterprises seeking social change, Ruebottom determined that these organizations fostered change by articulating right versus wrong, archetypical hero versus villain narratives. Any pragmatic legitimacy present (attempts to show how the organization could solve a problem) was overshadowed by what Ruebottom called "culturally accepted meta-narratives."

Meanwhile, the rhetorical strategies studied by Lurtz and Kruezer (2014) in their analysis of entrepreneurs' efforts to gain legitimacy reveal the presence of pragmatic and cognitive legitimacy. Indeed, interviewees in this study emphasized the importance of information about successes and profits in the entrepreneurs' rhetoric (i.e., pragmatic rhetoric). Lurtz and Kruezer also detected the use of archetypal (i.e., cognitive) patterns in the rhetoric such as a hero-villain dynamic in each successful entrepreneurial story told.

In aggregate, the above communication studies complicate rather than substantiate the pattern of pragmatic and moral legitimacy predominance identified in many of the other studies dedicated to gaining legitimacy. Only two communication studies confirm this pattern. The first is a study conducted by Soobaroyen and Ntim (2013). This pair concluded that a combination of pragmatic and moral legitimacy is the prevailing constructs rhetorically relied upon to gain legitimacy by the study's participants. The pair demonstrated this by analyzing 75 South African companies' reported responses to the HIV/AIDS epidemic. They found that the degree of pragmatic and moral legitimacy varied based on internal stakeholders' assessment of the conditions in the external environment and their perceptions of the salience of external stakeholders. When corporations faced surmounting government pressure through enactment of public policy to lead in eradication of the HIV/AIDS epidemic, corporate reporting was generally only symbolic in nature (lip service to satisfy new laws). Once corporations begin to perceive eradication as a societal concern, reporting became both symbolic and substantive—containing both moral and pragmatic legitimacy elements.

Bansal and Clelland's (2004) research on communication legitimacy is the second study reinforcing the high prevalence of pragmatic and moral legitimacy early in an organization's lifespan. Using stock market stability of 100 companies over a five year period as its legitimacy gauge, the study concluded that legitimacy increased in two cases. First, if a company had low legitimacy but communicated its commitment to environmental-friendly practices, legitimacy increased. Second, companies that reported environmental practices consistent with stakeholder expectations earned legitimacy. This study suggests that an assessment of stakeholder's external expectations (pragmatic assumptions) and values (moral assumptions) is necessary for understanding how legitimacy is gained—only then can one measure an organization's congruence with the external environment and make an informed prediction about an organization's success.

When considering the communication literature in aggregate, the biggest question is how to resolve the conflicting findings summarized above. Perhaps the best answer to this conundrum is found in the Dumitru et al. study (2014). To review, this team concluded that legitimacy strategies vary by context and with an organization's assessment of stakeholder expectations—a conclusion that helps explain the inconstant legitimacy forms embedded in young organizations' messaging. This attempt by organizations to cater to stakeholder expectations ties to Weber's (1922/1978) theory on traditional legitimization. To restate the premise of this theory, traditional legitimization relies on existing values and norms (i.e. those expectations currently held by stakeholders) to gain legitimacy. In other words, communication techniques, if accurately reflecting stakeholder expectations, norms, and values are undoubtedly an

essential part of gaining legitimacy. This conclusion is also reinforced by Weber's explanation of traditional legitimization.

Higher Education Legitimacy Studies

Conferring Legitimacy on Traditional Higher Education Institutions

Empirical studies on how and why external stakeholders confer legitimacy on traditional higher education institutions (bricks and mortar colleges and universities) are sparse at best. This may be because higher education is arguably already institutionalized. Articles like those written by Gumpert (2000), Mckee, Mills, and Weatherbee (2005), Springett and Kearins (2001), Thomas (2005), and Toma (2002) describe changes in higher education legitimacy trends but are not empirical. Others focus on how internal higher education stakeholders legitimize change. Hurley and Sa (2013), for example, analyzed the steps taken by an Ontario community college to institutionalize a new bachelor's degree in applied science, identifying several attempts at isomorphism through processes such as accreditation. Meanwhile, Shriberg (2002) identified the internal dynamics necessary for support of sustainability practices on college campuses such as collegiality, image-seeking behavior, and collaborative decision making. Martinez (2014) identified internal organizational changes necessary for a community college to transition to a four-year college.

During my research, I uncovered only one study on how external stakeholders legitimize changes to traditional higher education institutions. In other words, only one study in this body of higher education research appears to use a conceptual framework similar to the one I have chosen for this dissertation. Below, I analyze Jong's (2008) case study on the formation of partnerships between industry and higher education.

While Jong's (2008) research is a qualitative case study, its findings further validate the conclusions drawn in many of the studies summarized above. When examining how Berkley and Stanford begin biochemistry partnerships with industry, Jong found that the university scientists were critical players in gaining legitimacy. University scientists' connection to industry determined the strength and success of their departments and newly formed partnerships, confirming Higgins and Gulati's (2003) findings on the importance of the affluence of internal stakeholders' networks in the legitimization process.

Jong's (2008) study also confirms that external stakeholders' motivation for forming partnerships was driven by what he calls practical aims (i.e., pragmatic legitimacy), and without these partnerships, Stanford and Berkeley would have struggled to create buy-in for their biochemistry research—a conclusion Jong draws from a historical analysis of each institutions' research developments. Consequently, Jong's study validates the need for industry's role in legitimization in higher education research and demonstrates the utility of network formation.

Conferring Legitimacy on Distance Education Programs

Perhaps because distance education was once (and perhaps still is) viewed by higher education stakeholders as a potentially disruptive innovation to traditional tertiary education, many studies have attempted to explore its impact and viability. These studies attempt to directly or indirectly measure legitimacy, with participants ranging from faculty (internal stakeholders) to employers (external stakeholders). Below, I provide a review of studies conducted on the perspectives of both internal and external stakeholders in relation to distance education. Here, I expand the scope of my focus beyond my

conceptual framework because I view distance education as a predecessor to MOOCs and therefore aim to comprehensively chart the legitimacy research conducted on this topic.

Focusing on internal higher education stakeholders, Caravella (2011) found that faculty and administration sought to legitimize a distance business education program through a number of efforts that mirrored traditional postsecondary education. These efforts included joining professional organizations, identifying faculty mentors, using the same instructional technology used on campus, and these steps culminated in receiving accreditation. Piña (2008), developed a survey instrument based on literature on institutionalization and modeled after Furco's (2002) Self-Assessment Rubric for the Institutionalization of Service-Learning in Higher Education (an instrument that, generally speaking, measures institutionalization isomorphically). He then surveyed 170 distance education faculty and administrators and found all 30 of the institutionalization factors present, with particular emphasis placed on the need for sufficient technology and technological support. Finally, Surrey, Grubb Ensminger, and Ouimette (2009) examined barriers and enablers to use of distance education through the lens of education faculty. They concluded that financial resources and technology served as the biggest barrier to offering online education.

In aggregate, these studies reveal that, from the perspective of internal stakeholders, the same support and operational footings that bolster traditional postsecondary education are necessary for distance education programs to gain and sustain legitimacy. The resources identified as integral in legitimizing distance education may be classified as both isomorphic and pragmatic. However, such findings are

incomplete because they do not address external stakeholders' views on whether these resources are a precursor to legitimizing distance education.

Distance education studies that focus on opinions of external stakeholders are typically aimed at measuring the employability of distance education students. All such studies appear to measure legitimacy or, more generally, distance education acceptance from employment gatekeepers' perspectives. This body of research includes research conducted by Adams and Defleur (2005, 2006, 2007); Gonzalez, Kennedy and Cenzer (2007); and Keller (2011).

Keller's (2011) study actually bridges the perceptions of both internal and external stakeholders in an effort to measure overall legitimization of distance education, doing so quantitatively by surveying (traditional survey and conjoint analysis) students and faculty nationwide and employers throughout the state of Kentucky. Keller's survey measures sociopolitical legitimacy (pragmatic and moral legitimacy combined) and cognitive legitimacy constructs—choices that assume distance education has moved beyond the legitimacy gaining to legitimacy sustainability stage. Keller's findings, however, do not fully confirm this underlying supposition.

Based on Keller's (2011) survey results, all stakeholders in the study agreed that distance education possesses sociopolitical and cognitive legitimacy (seemingly demonstrating distance education's sustainability) but the conjoint analysis revealed that employers prefer traditional degrees (obtained at bricks and mortar institutions) over distance degrees when screening prospective employees. In other words, when analyzed in relation to traditional education, distance education is still in the process of gaining legitimacy.

Adams and Defleur (2005, 2006, 2007) arrived at similar findings related to employer perceptions of online degrees. The pair conducted three studies on this matter, one specific to hiring chairs' perceptions of doctoral students who receive online degrees (2005), one that measures the employability of students in general with online degrees (2006), and one specific to the healthcare industry's perceptions of prospective employees with online degrees (2007). Using conjoint analysis to assess preference and then open response questions to understand the reasons for these preferences, the pair found that all the employers studied overwhelmingly preferred traditional degrees, calling into question the disruptive influence of distance education.

Surprisingly, Gonzalez, Kennedy and Cenzer's (2007) study resulted in findings contrary to both Keller (2011) and Adams and Defleur (2005, 2006, 2007). This team used a traditional survey format and interviews to compare perceptions of students who obtained online academic librarian degrees to those of decision makers charged with hiring academic librarians. Despite students' trepidations about the credibility of their online degrees, 73% of hiring committee chairs indicated that the means of earning the degree (traditional or online) was a nonfactor in employment. Instead students' experience predominately influenced hiring decisions.

Perhaps the biggest take way from the above studies on employers' perceptions of distance education is that the method used appears to impact the outcome of the study. When traditional survey methods are used (e.g., Likert scale), as was the case in the Gonzalez, Kennedy, and Cenzer (2007) study and the first part of Keller's (2011) empirical work, distance education appears to have gained and is arguably sustaining legitimacy. When conjoint analysis is used, as exemplified by Adams and Defleur (2005,

2006, 2007) and the second part of Keller's (2011) methods, distance education appears to only be gaining legitimacy in relation to traditional forms of degree attainment. This suggests that to best understand the degree of legitimacy possessed by emergent organization or innovation, one should conduct a two-part analysis—first an assessment of whether the constructs associated with legitimacy are perceived to be present by stakeholders through a traditional survey and second a comparative analysis that requires stakeholders to evaluate the emerging organization/innovation in relation to one that is fully institutionalized (i.e., that has fully achieved cognitive legitimacy).

MOOC Research

To conclude this chapter, I provide a brief synopsis of the empirical research on MOOCs conducted to date. As noted in the introduction, this research is in its infancy and typically related to pedagogical practices, technology used, learner profiles, learner experiences, and educational outcomes (Liyaganawardena, Adams, & Williams, 2013). Indeed, the following papers are examples of research centered on instructional approaches, learning technology, and learner experience or outcomes: Beaven, Hauck, Comas-Quinn, Lewis, and de los Acros (2014); Bruff, Fisher, McEwen, and Smith (2013); Burrow (2013); Clow (2013); Coetzee, Fox, Hearst, and Hartmann (2014); DeWaard, Abajian, Gallagher, Hogue, Keskin, Koutropoulos, and Rodriguez (2011); Guo and Reinecke (2014); Kellogg, Booth, and Oliver (2014); Lim, Coetzee, Hartmann, Fox, and Hearst (2014); Maas, Heather, Do, Brandman, Koller, and Ng (2014); Milligan, Littlejohn, and Margaryan, (2013); Rodriguez (2012); Rosé and Siemens (2014); Vivian, Falkner, and Falkner (2014); Wilkowski, Russell, and Deutsch (2014); Yousef, Chatti, Schroeder, and Wosnitza (2014).

A handful of studies have examined MOOC participation from either an external (i.e., end-user) or internal (i.e., institutional) perspective. For instance, a University of Pennsylvania study provided a profile of MOOC students based on a survey of 35,000 MOOC participants: male, young, educated, employed, from developed countries, and taking the courses for purposes of professional development or due to curiosity (Christensen et al., 2013). A Pennsylvania State University study complements this research, expanding on it by exploring both student motivations for MOOC participation and completion (Zheng, Rosson, Shih, & Carroll, 2014). This study reveals that in addition to professional development and curiosity, students take MOOCs to assist with current needs, such as other college coursework, and to connect with others, but factors such as time commitments and lack of academic pressure often inhibit completion (Zheng et al., 2014). White, Davis, Dickens, Leon-Urrutia, and Sanchez (in press) explored both student and institutional motivations for MOOC participation. They confirmed that students register for these courses for entertainment or personal growth while institutions primarily offer MOOCs to create a campus culture more favorable to online education and to expand their brand.

Four additional, peer-reviewed studies have also attempted to address the MOOC movement from an organizational perspective (Hollands & Tirthali, 2014a; Hollands & Tirthali, 2014b; O'Connor, 2014; Odom, 2013; Scholz, 2013). Work by Odom (2013) and Scholz (2013) provides cost-benefit analyses associated with joining the movement but their papers are not empirical. Both O'Connor's study (2014),—which centers on institutional motivations for Australian universities to offer MOOCs as expressed through policy, planning documents, and interviews with school officials, and Hollands and

Tirthali's (2014a; 2014b) research is pertinent to my study. Both help demystify the purpose of MOOCs from the lens of internal stakeholders (higher education officials); therefore, their findings are worth exploring in detail.

Hollands and Tirthali's (2014a; 2014b) completed an empirical study discussed in two papers. Together, they explored why U.S. institutions are joining the MOOC movement, the costs associated with joining it, and perspectives on MOOCs' long-term role in higher education (Hollands & Tirthali's, 2014a; 2014b). They collected data from 83 internal higher education stakeholders from public and private institutions and educational companies involved in online learning, identifying six common reasons why institutions offer MOOC. These reasons are as follows:

Extending the reach of the institution and access to education, building and maintaining brand, improving economics by lowering costs or increasing revenues, improving educational outcomes for MOOC participants and on-campus students, innovation in teaching and learning, [and] conducting research on teaching and learning. (Hollands & Tirthali, 2014b, p. 5)

Five of these six reasons appear to have come to fruition, but Hollands and Tirthali warn that these reasons still must be carefully weighted in relation to the substantial cost of offering a MOOC, \$39,000 to \$325,300 (2014a; 2014b). O'Connor's study (2014) reinforces many of Hollands and Tirthali's findings, uncovering that reasons for joining MOOCs include curriculum renewal and institution promotion.

While O'Connor's (2014) and Hollands and Tirthali's study (2014a) helps elucidate the impetus giving rise to and helping to sustain the MOOC movement from the

perspective of insiders, the study does not address external stakeholders' perceptions of this online learning phenomenon. Radford et al.'s (2014) study is the first to take this critical step. It analyses employer perceptions of MOOCs using mixed methods. This study measured employer awareness of MOOCs, determined if employers currently use MOOCs as a means of recruiting or screening applicants during the hiring process, and finally assessed how employers intend to use MOOCs in the future. It found only 31% of participants were aware of MOOCs, and only one participant was currently using MOOCs as a recruitment tool. The study also uncovered that employers were receptive to using MOOCs to recruit in the future (57%) and even more amenable to using MOOC completion as means of assessing applicants' character traits such as ambition and persistence during the hiring process (73 %). A large majority of participants also favored using MOOCs for workforce development (76%). However, based on interview data, participants did not view MOOCs as verification of mastering certain skills.

This study appears to demonstrate that MOOCs may gain the acceptance of a critical stakeholder—employers—but only if used to supplement existing practices and norms associated with recruiting and hiring (Radford et al., 2014). The study was limited to employers in North Carolina and the research design did not appear to be guided by a theoretical framework like legitimacy theory. Participants' perceptions of MOOCs were primarily measured through a four-question survey containing a Likert-like scale of acceptance. A handful of participants were then selected, based on their knowledge of MOOCs, to participate in interviews on their current and planned use of MOOCs. In other words, the Radford et al. study serves as solid foundation for my study but has

several gaps that I aim to fill by conducting a study informed by the body of work on gaining legitimacy as summarized in this chapter.

Literature Review Summary

This chapter reveals a tremendous amount about how legitimacy is gained, particularly from the perspectives of external stakeholders, and how this form of legitimacy should be studied. To assess whether an organization is gaining legitimacy, one must understand stakeholders' expectations of the organization and if these expectations are being satisfied. These expectations will likely take the form of pragmatic and moral attributes perceived to be possessed and often communicated by the nascent organization. In addition, external stakeholders are more apt to extend their acceptance to organizations with leaders respected and connected in their fields. External stakeholders' perceptions of whether or not the constructs associated with gaining legitimacy may be measured through the development of a survey instrument. However, as revealed by the distance education studies, to truly understand the disruptive impact of a new innovation on higher education, traditional survey methods must be combined with conjoint analysis.

With the above information as my guide, I devised a means of measuring if MOOCs are gaining legitimacy. As I demonstrated in this literature review, this study is essential as only one such empirical research on MOOCs has been conducted to date. Chapter 3 explains the procedural steps I followed to carry out such empirical research.

CHAPTER III

METHODS

Review of Research Purpose and Research Questions

The purpose of this dissertation is to assess whether or not human resource personnel, individuals who play a critical role in prospective employee screening and/or hiring decisions, are beginning to legitimize education offered by Massive Open Online Course (MOOC) providers. As explained in Chapter 1, I used portions of Suchman's (1995) conceptual framework to guide this study, focusing on how legitimacy is gained from the perspective of external stakeholders. I chose this population due to studies and news reports highlighting the importance of employers' support in order for MOOCs to be viable education providers (Dellarocas & Van Alstyne, 2013; Hollands & Tirthali, 2014a; Mangan, 2012; Marshall, 2013).

With the broad goals of this study outlined, my specific research questions are as follows:

- Do human resource personnel's perceptions of MOOC providers' legitimacy differ by age, geographic sector, prior knowledge of MOOCs, industry, education acquisition method, or education level?
- What are the barriers to MOOC providers becoming legitimized and consequently institutionalized by human resource personnel, if any?

- Do human resource personnel prefer job applicants that have a combination of traditional employment credentials and MOOC credits more than applicants with traditional employment credentials alone?

Answers to these questions, in aggregate, are designed to help inform the extent to which MOOC providers are gaining legitimacy among human resource personnel.

Based on the constructs associated with external stakeholders legitimizing new organizations, as identified in Chapter 2, this study collected data using an originally-designed survey instrument in an attempt to answer the above questions. This chapter contains the roadmap that was used for carrying out this research, including discussion of the participant selection and recruitment process, a description of the research instrument, and an explanation of statistical methods used.

Participant Selection

The population for this study was human resource personnel from the largest 100 metropolitan areas in the U.S. Most of these participants serve in leadership roles in their local SHRM chapters. My target response rate was 300 participants—a number suggested for carrying out choice-based conjoint analysis (CBC) on an unspecified population (Orme, 2010). I selected to study human resource personnel because, according to the U.S. Bureau of Labor Statistics (2014), these individuals are typically responsible for employee recruitment and interviewing. Human resource personnel often serve as critical gatekeepers in the hiring process; therefore, their view of MOOC credentials is core to legitimization of this emerging organization. I chose to recruit participants involved in local SHRM chapters given that this organization is dedicated solely to serving human

resource personnel. This increased the likelihood that those receiving invitations to participate in the study currently worked in this field.

By using participants working in metropolitan areas, I aimed to increase the likelihood of variance in my population by industry, helping me respond to one of my research questions—whether or not employer acceptance of MOOCs varies by industry. Metropolitan areas have such industry diversity primarily due to size of the populations living and working within them. According to the U.S. Census Bureau metropolitan areas are “a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core” (2013, para. 1). Each such area must have a minimum of 50,000 or more inhabitants (U.S. Census Bureau, 2013). I used the largest 100 such areas.

The multitude of industries within metropolitan areas are often categorized into major sectors for purposes of tracking and reporting economic data. Layne (2013), conducting research for the U.S. Census Bureau, classified metropolitan areas into six groups based on industry concentrations. These six groups are listed in the table below.

Table 2. Industry Groups

Industry Group		Census Industry Codes	NAICS Industry Sector
Group 1	Manufacturing	1070-3990	31-33
Group 2	Agriculture, forestry, fishing, hunting, and mining; Construction	0170-0490 0770	11 and 21 23
Group 3	Wholesale trade Transportation and warehousing utilities	0570-0690; 4070-4590, 6070-6390	42; 48-49 and 22
Group 4	Information	6470-6780;	51;

Table 2. cont.

Industry Group		Census Industry Codes	NAICS Industry Sector
	Finance and insurance, and real estate, and rental and leasing	6870-7190;	52-53;
	Professional, scientific, and management, and administrative, and waste management services	7270-7790	54-56
Group 5	Education services, healthcare, and social assistance	7860-8470;	61-62;
	Public administration	9370-9590	92
Group 6	Retail trade	4760-5790;	44-45;
	Arts, entertainment, and recreation, and accommodation, and food services	8560-8690	71-72;
	Other services, except public administration	8770-9290	81

Note. From *The education premium for employment: Is it the same everywhere?* by C. Layne, 2013, Suitland, MD: U.S. Census Bureau, p. 17.

As part of Layne's research (2013), he found that in metro areas with concentrations in transportation, finance, or education, individuals without a bachelor's degree had higher unemployment rates. Aware of this bias, I carefully designed my recruitment strategies to ensure the industries represented in my sample were balanced. These strategies are described below.

Recruitment

Perhaps the biggest challenge of this study was recruiting participants. Classified job advertisements, which once listed human resource directors' contact information, generally no longer contain such details, and after contacting SHRM's national headquarters, I learned that it had a policy prohibiting dissemination of membership rosters to non-members. I therefore turned to the Internet to recruit participants using a

two-step approach that included social media and email invitations. This strategy was informed by Ramo, Hall, and Prochaska's (2010) research, which provides evidence that a multi-pronged approach to Internet recruitment helps maximize sample size. This team used multiple methods of recruitment including social media and email to conduct survey research. My study mirrored this strategy.

First, I used social media to recruit participants. The decision to use this method first was informed by empirical literature on the promising potential of this recruiting technique (Johnson, Mueller, Williams, & Gutmann, 2014; Kapp, Peters, & Oliver, 2013; Ramo & Prochaska, 2012; Tan, Forgasz, Leder, & McLeod, 2013). I used Facebook ads and a post in a LinkedIn human resources group to reach potential participants. The Facebook ads were targeted at participants in the 26 metropolitan areas that Layne characterized as having unspecified industry concentrations (See Appendix B). My LinkedIn invitation was visible to potential participants nationwide. After six weeks, I received only two responses using social media.

Given the low response rate using social media and the cost of running Facebook ads, I decided to end my social media recruitment efforts after six weeks and focus on my second recruitment technique, email invitations. I sent email invitations to potential participants incrementally to avoid overreach. Initially, I sent invitations to potential participants in the 26 metropolitan areas characterized by Layne (2013) as having unspecified concentrations of industry. I continued to expand the number of metropolitan areas surveyed to attain my targeted response rate using U.S. Census Bureau (2013) data. Through use of these data, I was able to assess whether or not there was enough industry diversity to balance any bias held by employers in the transportation, finance, and

education sectors. Appendix C contains a complete list of metropolitan areas in which I recruited participants.²

To find participants' email addresses, I visited the websites of Society for Human Resource Management chapters. Despite SHRM's national policy prohibiting dissemination of contact information, most local SHRM chapters publish their board and committee members contact information online. I copied the email addresses of each chapter's board and committee members into a database. At the end of my participant recruitment period, I had generated a database containing 992 email addresses.

Based on a recommendation from Creswell (2014), I decided that each potential participant recruited via email would receive an initial study invitation and a reminder message to maximize response rates. I also asked each participant receiving an email invitation to forward the invitation to other human resource professionals in their area. This request was an attempt to maximize the potential pool of participants in each metropolitan area.

To craft the email invitation and follow-up message, I relied heavily on past studies about use of email in survey research. For instance, literature suggests that survey invitations sent via email elicit higher response rates if personalized. I therefore ensured that each email's salutation line contained the recipient's name (Heerwegh, 2005; Heerwegh, Vanhove, Matthijs, & Loosveldt, 2005; Pearson & Levine, 2003). Trouteaud (2004) found that emphasizing that survey completion can be done quickly and including an approximation time of completion in terms of minutes boosted response rates, and consequently my email invitations informed recipients that my survey would take

² This list only contains 75 cities because I was unable to find email addresses to reach participants in 25 of the areas selected for potential study.

approximately ten minutes to complete. Sutherland; Amar, and Laughon (2013) found that email invitations sent directly by the researcher also helped increase participation in a survey. Based on this finding, I included a brief statement introducing myself as a graduate student conducting dissertation research.

In addition to the above content, my email invitation contained information on steps I have taken to protect participants—essential information to ensure my research was carried out ethically. Finally, I included a link to the online survey in the email invitation and information on how to enter a drawing for one of four \$50 gift cards that I awarded at the end of my participant recruitment period. The email invitation and follow-up message is available for review in Appendix E as part of the IRB application. I received approximately 140 responses using email invitations.

During the email campaign, I learned that the *HR Hero Newsletter*, a national publication to which I subscribe, hosts an online forum for human resource directors to network and ask questions. I requested and received permission to post a brief invitation to participate in my study on this site. This invitation was posted during a timeframe in which responses to my email invitations had grown stagnant, allowing me to gauge the impact of recruiting participants over another form of social media—an online forum. I received one response to this post.

This response brought my total responses to 143, and I ended my recruitment efforts after receiving it. This decision was prompted by the amount of time spent collecting these responses—approximately six months. Of these responses, only 112 were suitable for data analysis as explained in Chapter 4. I ensured there was no overlap

in these responses by tracking and comparing IP addresses throughout the data collection period.

Instrumentation and Data Collection Methods

As explained in this and previous chapters, this study used quantitative survey research to collect data. Biemer and Lyberg (2003) explain that survey research provides data “on preferences, needs, and behaviors of people in society as well as other entities” (p. 461). Because this study aims to measure a national sample of human resource personnel’s perceptions of and willingness to accept MOOCs, survey research helped achieve the goals of this study in an economical and efficient manner. It furthermore allowed for general inferences about human resource personnel’s views of MOOCs through a sample (Creswell, 2014). Such general inferences about this population are essential because institutional legitimacy studies are typically aimed at uncovering how or why mass acceptance of an organization occurs. As demonstrated by Chapter 2, even when qualitative legitimacy studies are conducted, such studies typically conclude by suggesting that findings should be validated on a larger scale to confirm their generalizability to the population of stakeholders responsible for legitimization.

The survey instrument that I used was cross-sectional. This design allowed measurement of participants’ responses during a single point in time, estimation of certain parameters (which form of legitimacy is present), and described relationships (e.g., between the industries in which human resource personnel work and their acceptance of MOOCs) (Kelley, Clark, Brown, & Sitzia, 2013). With institutional legitimacy as a conceptual frame for my research—which assumes that levels of

legitimacy vary by context—cross-sectional survey research was a fitting vehicle for carrying out this study.

In addition to considering my conceptual framework when designing my survey, I developed this instrument guided by the literature review in Chapter 2 on the constructs and methods used to measure legitimacy. To review, through this literature analysis, I uncovered that studies designed to measure whether an organization is gaining legitimacy must examine to what extent stakeholders view an organization as possessing moral and pragmatic legitimacy. One critical component of gaining pragmatic legitimacy occurs when stakeholders assess the extent to which new organizations' figureheads are professionally connected. Another critical part of this process involves organizations using communication strategies laden with a variety of legitimacy forms to demonstrate that they meet stakeholder expectations.

All the above factors associated with gaining legitimacy were measured through the development of a Likert-like survey instrument. To better assess the disruptive impact of MOOCs on higher education, these traditional survey methods were combined with conjoint analysis. In other words, my survey instrument was twofold in nature, containing both a traditional survey component and conjoint analysis.

The design of my survey was informed by Fan and Yan's (2010) recommendations on maximizing response rates. One of Fan and Yan's recommendations is to design web-based surveys to be completed in 13 minutes or less. This is an average of approximately 32 questions (Puleston, 2012). My instrument was slightly under this threshold with 27 questions. Screenshots of the research instrument are included in Appendix D. A detailed overview of the survey instrument is included

below, including a description of the assurances and instructions provided to participants on the introductory screen, a detailed explanation of independent and dependent variables, and a discussion of the conjoint analysis exercise.

Assurances and Survey Instructions

The first screen of my online survey contained research protection assurances. These assurances included a statement that the survey is hosted on a secure server, protecting the security of responses. This screen also assured that the survey did not ask for information that would identify the participant or his/her company and that results would be used for purposes of doctoral research. It instructed participants that they may skip questions in the survey or, in some cases, select a "none" option and may opt-out of the survey at any time by closing their browser. In addition to providing these assurances to participants, I obtained permission to carry out my study through the UND Institutional Review Board (IRB). The IRB request is included as Appendix E.

After reading these assurances, participants reviewed a screen containing research instructions. This page contained a brief definition of MOOCs to ensure participants have a basic understanding of them and provided an overview of survey content. This page also contained my contact information in the event that participants had any questions about the survey or my research. I also used the introductory screen to explain that the survey would take approximately 10 minutes. After collecting data, I learned that the survey took an average of 10.5 minutes to complete.

Demographic Questions

After reading the survey instructions and assurances, participants were asked if they were aware of MOOCs prior to taking the survey and then were asked to complete

several demographic questions. Demographic questions included sex and age range based on Pew’s generation classification system (Zickuhr, 2010) and, more recently, *Time*’s classification of the age groups included in the millennial generation (Stein, 2013). In addition, participants were asked about their education level and where they took college coursework (e.g., online, on campus, blended, or other.). They identified the geographic area where they worked, years in their position, their position classification (human resources staff, human resources management, or other), and the industry of the company for which they were employed based on Layne’s (2013) industry classification system. As explained in Chapter 4, all of the demographic questions served as the independent variables for data analysis purposes with the exception of sex and years in position. These demographic questions are contained in Table 3.

Table 3. Demographic Questions

Independent variable	Choices
Age range	33 or under 34-49 50-68 68+
Education level	High school diploma Some college Associate’s degree Bachelor’s degree Master’s degree or higher
Formats of college coursework taken (select all that apply)	On campus Online Blended (mix of online and face-to-face) Other (please list) N/a

Table 3. cont.

Independent variable	Choices
Industry	Manufacturing Agriculture, forestry, fishing, hunting, and mining, construction Transportation, warehousing, utilities, or wholesale trade Information, finance and insurance, and real estate, rental and leasing, professional/administrative services, waste management Public administration, education, social services, or healthcare Retail trade, arts, entertainment, and recreation, and accommodation, and food services
Position in which currently employed	Human resources staff Human resources management Other (please specify)
Sex	Male Female
U.S. region where employed	Midwest (Chicago, Columbus, Indianapolis, Kansas City, St. Louis) Northeast (Baltimore, Buffalo, Hartford, Philadelphia, Pittsburgh, Providence) South (Charlotte, Miami, Nashville, San Antonio, Tulsa, Virginia Beach) West (Los Angeles, Phoenix, Portland, Sacramento, Salt Lake, San Diego, Seattle)
Years directly involved in hiring process	Open ended question

Survey Dependent Variables (Likert-like exercise)

After completing demographic questions, participants reported their opinions on MOOCs using a traditional survey format. Participants were asked to rate their acceptance level of MOOC providers based on a series of characteristics using a Likert-

like scale (ranging from 1=an unacceptable provider of postsecondary education to 4=an acceptable provider of postsecondary education). These characteristics fell into two categories informed by Chapter 2—moral legitimacy and pragmatic legitimacy, with a stronger emphasis on the latter as explained in more detail below. Processes that help actualize legitimacy (i.e., network formation and communication strategies) were also incorporated into this section of the survey where applicable.

Moral legitimacy. When an organization is gaining legitimacy, literature analyzing this process indicates that organizations must exhibit moral legitimacy, particularly moral similitude, with stakeholders' values and efforts to improve society (Cashore, 2002). Organizations attempt to do this through communication strategies. In higher education, one of the primary ways that such communication strategies are relayed to stakeholders are through mission statements according to research conducted by Morphew and Hartley (2006). Therefore, I decided to rely on the mission statements of three major MOOC providers—Coursera, edX, and Udacity—to determine what moral messages these organizations are sending to stakeholders. All three mission statements are reprinted in Appendix H.

Analyzing the missions of the three largest MOOCs providers in relation to Hollands and Tirthila's study (2014a), I found three moral legitimacy themes espoused by all three organizations—a commitment to promote equality³, personal growth, and social betterment. None of these mission statements extrapolate on how the

³ Notably, both Hollands and Tirthila's (2014a) and Christensen et al.'s (2013) studies have found that MOOC participants are generally well educated, discrediting the claim that MOOCs create educational equality. Still Hollands and Tirthila (2014a) found that 65% of their study participants cited this a reason for participating in the MOOC movement.

organizations define these broad ideals or how they actualize them, leaving stakeholders to draw their own conclusions about what these purpose statements mean. I wanted my survey instrument to mirror this communication technique to the extent possible to measure participants' reactions to them as authentically as possible. However, I was concerned that participants might be so unfamiliar with MOOCs that they would have little or no reaction to the moral claims contained in mission statements without understanding how they were actualized. Therefore, I supplemented these mission statement themes with information on how MOOCs were carrying out these moral commitments.

The combination of moral pledges in MOOC mission statements and information on how they are executed became the first three dependent variables in my survey as shown in Table 4. Notably, the constructs associated with moral legitimacy all presented MOOCs very favorably, and this would impact data analysis as demonstrated in Chapter 4. Also noteworthy, I changed the variable "social betterment" to "promote diversity" upon examining several press releases and finding that this wording better describe MOOCs' social objective.

Table 4. Dependent Variables for Likert-Like Questions

Construct	Indicators
Moral Legitimacy	<ol style="list-style-type: none"> <li data-bbox="699 1503 1382 1612">1. MOOCs promote equality by providing educational access to anyone with Internet access [access] <li data-bbox="699 1646 1338 1751">2. MOOCs promote personal growth by offering courses on a wide-range of topics [personal growth]

Table 4. cont.

Construct	Indicators
Moral Legitimacy	3. MOOCs promote global diversity by allowing students from around the world to interact in a global classroom [global diversity]

Pragmatic legitimacy. In order for participants to lend pragmatic legitimacy to an emerging organization, participants must not only believe that they are engaged in an exchange but also must perceive the exchange as an upgrade (Cashore, 2002). To determine if MOOCs are attempting to portray their services as upgrades to stakeholders, I again reviewed themes contained in the three largest MOOC mission statements. This analysis, alone, was insufficient to determine the extent to which MOOCs were engaged in pragmatic legitimacy practices. As I showed in the literature review, pragmatic legitimacy is typically actualized through communication techniques and networking efforts. To determine if MOOCs were actively promoting their networks, I reviewed many of the news articles devoted to the phenomenon at the height of “MOOC madness.” Below are my findings and the resulting survey constructs stemming from my analysis of forms of pragmatic legitimacy associated with MOOCs. I organized this discussion by the action used to convey pragmatic legitimacy—communication strategies or network formation efforts. Again, the variables resulting from this analysis depicted MOOCs very favorably, and this likely lead to skewed results as further discussed in Chapter 4.

Communication actions. Pragmatic legitimacy themes in the MOOC mission statements that I analyzed are as follows. All three MOOCs have a global outreach mission, potentially resulting in a larger applicant recruitment pool for employers. All three missions also emphasize that education is provided in an affordable manner (courses generally are free), potentially making them a no or low cost option for

employee professional development and a potential method of reducing the economic burden of student debt (Fitzgerald, 2013; Herring, 2013; Hollands & Tirthila, 2014a; President’s Council of Advisors on Science and Technology, 2013). One of the mission statements expresses a commitment to cutting edge courses, and MOOCs’ ability to offer courses on topics that are timely and synchronized with technological innovation and market demands is a feature often touted in news coverage on this emerging educational form (Fitzgerald, 2013; Guile, 2013; Herring, 2013; O’Conner, 2013). Hollands and Tirthila’s study also found cutting-edge course offerings to be a reason for offering MOOCs (2014a).

Based on these pragmatic components of MOOC mission statements, I devised three variables to measure employers’ responses to these communication techniques: commitment to educate the workforce globally, providing low to no cost education, and offering educational services that are responsive to market and technology demands. I again supplemented these variables with examples to help participants who were unfamiliar with MOOCs better understand how MOOCs were living these missions. Table 5 contains the dependent variables associated with pragmatic communication strategies.

Table 5. Dependent Variables for Likert-Like Questions

Construct	Indicators
Pragmatic Legitimacy: Communicated	<ol style="list-style-type: none"> <li data-bbox="699 1591 1382 1661">1. MOOCs allow access to college course content at low or no cost [cost] <li data-bbox="699 1682 1382 1787">2. MOOCS have courses devoted to the latest developments in science, technology and other industries [new knowledge] <li data-bbox="699 1808 1382 1877">3. MOOCS may allow for a more educated workforce worldwide [world workforce]

Network formation actions. Chapter 2 reviewed several studies on the role of networks in gaining legitimacy (Chang, 2004; Cheng, 2010; Rao et al., 2008; Higgins & Gulati, 2003; Jong, 2008). Based on the work of Suchman (1995) and Weber (1922/1978), I classified this activity as a means of actualizing pragmatic legitimacy. The body of literature on this legitimacy formation process is extensive, perhaps emphasizing its importance during the early stages of legitimization. Therefore, as I reviewed news articles on MOOCs, I noted much emphasis on (a) the types of postsecondary institutions that founded major MOOCs (i.e., prestigious U.S. colleges and universities), (b) corporations that have partnered with MOOCs (Business Wire, 2012; Coursera, 2014; edX, 2014; Lee, 2014; Meister, 2013), and (c) renowned MOOC faculty (Carapezza, 2013; Finegold, 2012; Girard, 2014; Gottlieb, 2014; Riddell, 2013). These three items became the dependent variables for measuring network formation and are listed in Table 6.

Table 6. Dependent Variables for Likert-Like Questions

Construct	Indicators
Pragmatic Legitimacy: Networking	<ol style="list-style-type: none"> 1. MOOCs are offered by colleges and universities such as Harvard, MIT, and Yale [AAU members] 2. MOOCs are partners with corporations such as Google, Linux, Bank of America, and the Smithsonian [business partners] 3. Many MOOC instructors are famous such as Noble Prize winner Robert Shiller, Google Glass inventor Sebastian Thrun, and <i>Chicago Tribune</i> journalist Owen Youngman [instructors]

Conjoint Analysis Design

Having indicated their preference for MOOCs based on the dependent variables described above, participants began the final portion of the survey—the conjoint analysis

exercise. Describing the work of psychometrician Thurston in relation to conjoint analysis, Bakken and Fraiser (2006) explained: “the probability of choosing a given alternative is equal to the probability that the utility of that alternative is greater than the utility of any of the other alternatives under consideration” (p. 606). This is the logic upon which conjoint analysis is founded. It uses statistical estimation to arrive at an assessment of the utility of several different components of observed choices to participants (Bakken & Fraiser, 2006). I used a specific form of this research method, choice-based conjoint (CBC) analysis, in an attempt to assess human resource personnel’s preferences towards MOOCs.

As described in Chapter 1, CBC analysis (also called stated preferences choice modeling) is used to present participants with a competitive set of “products,” requiring them to choose between them (Bakken & Fraiser, 2006). It requires the researcher to define the attributes s/he aims to measure (e.g., price or color), breakdown these attributes into levels (\$100, \$150, \$200; red, blue, green), and explain how and why the researcher combined certain attributes to create hypothetical “products” for purposes of comparison. During this exercise, participants make tradeoffs on product features, creating choice patterns that can be determined through statistical analysis (Bakken & Fraiser, 2006).

Using CBC design, I developed mock job applicant qualification summaries and presented participants with a pool of hypothetical applicants—each with different qualification profiles—asking participants to select the applicant that would be recommended for an interview/next level of screening in the participant’s organization. In keeping with choice-based conjoint analysis design, participants were required to make

trade-offs during the applicant selection process (Bakken & Fraiser, 2006). Table 7 contains my independent variables for the conjoint analysis portion of this study. As noted in Chapter 1, participants received clear instructions that the type of position being filled in the exercise did not require special licensure or certification in an attempt to overcome a major delimitation—MOOCs cannot serve as substitutes for education in certain fields regulated by licensing or credentialing standards. Appendix D contains an example of the CBC exercise.

Table 7. Description of CBC Attributes and Attribute Levels

Attributes	Attribute Levels
Education level	High school diploma only Some college Associate’s degree Bachelor’s degree
MOOCs completed	No courses Some Equivalent of two years of college Equivalent of four years of college
On-the-job experience	None Less than preferred Equivalent to preferred minimum More than preferred minimum

The specific research design protocols for the CBC portion of my study were as follows. Participants were asked to either select one candidate from a set of four (Hauser, n.d.) or select none of the candidates in each choice set. Hauser (n.d.) explains that a choice set containing two to four items is most common in CBC, and I therefore selected four items per choice set to maximize data collected from each participant. I included the

null option to determine at what point choice sets were simply unacceptable to participants. Inclusion of the null option was also meant to model real-world decision making scenarios in which human resource personnel repost a job vacancy due to a lack of qualified candidates (Bakken & Fraiser, 2006).

Because I had four levels for each attribute I intended to measure, my study contained 64 different candidate profiles (Hauser, n.d.). Participants responded to six random choice sets of these profiles based on a study conducted by Tang and Grenville (2010), a research team who found that after six to eight choice sets participant responses become inconsistent, likely due to fatigue. The biggest limitation of choosing this approach was that participants were not exposed to every choice set. However, with thousands of possible sets, such exposure would indeed be implausible and presenting all choice sets to participants would not simulate real world selection processes.

Choice sets were presented to participants using a randomized model. The software randomly selected four candidate profiles to comprise each choice set and also allowed respondents the option to select none of the profiles for each choice set. I chose this approach because use of randomized choice sets allowed for one to aggregate the utility of participants' responses on a question-by-question basis, with answers to the first random question allowing estimation of the utilities for the second and the model becoming more refined with each answer (Johnson & Orme, 1996). However, randomized choice sets have limitations such as failure to control for the same attribute levels appearing more than once in a choice set sometimes skewing the decision making process (Greenacre, 2013). The software I used for this study, as described below, corrected for such errors (Chrzan & Orme, 2000), and therefore, I was able to reap the

advantages of randomized CBC design with minimal limitations. Table 8 contains an example of how choice sets were presented to participants in this study.

Table 8. Example of CBC Choice Set

Assume that you are screening candidates to fill a position for which a bachelor's degree and three years of on-the job experience is preferred (assume the position does not require special licensure or an accredited degree). Choose the candidate who is most qualified to advance in your hiring process by choosing one of the buttons below:

Candidate 1	Candidate 2	Candidate 3	Candidate 4	None
High school diploma	Associate's degree	Associate's degree	Bachelor's degree	I wouldn't choose any of these candidates.
Completed equivalent of bachelor's degree in MOOCs	Completed equivalent of associate's degree in MOOCs	Completed equivalent of associate's degree in MOOCs	Completed equivalent of associate's degree in MOOCs	
Three years of work experience	More than three years of work experience	No experience	Less than three years of experience	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Data Collection Software

I administered my survey electronically using Sawtooth SSI Web Software, online survey software licensed through a grant I obtained directly through this software manufacturer. I chose Sawtooth Software for three reasons. First, I was able to brand the survey with UND's logo, indirectly indicating to participants that the research is being conducted for a viable, scholarly purpose and not for purposes of marketing or solicitation. This is a branding method that positively impacts response rates (Fan & Yan, 2010).

Second, Sawtooth's surveys can be uploaded to a secure online server. To host the survey online, I purchased a web domain and secure socket layer (SSL) certificate

from RapidSSL. This certificate uses 256-bit encryption and is recognized by 99% of web browsers (RapidSSL, 2014), meaning that the survey was more than likely accessible to the vast majority of participants, and data were collected in a secure online environment.

Third, I chose to use Sawtooth because it is a leader in conjoint analysis software production (Reed et al., 2013). It allows for administration of traditional survey questions and CBC questions using the same instrument. It furthermore has the capability to perform the complicated computations associated with estimating utilities for each level of attribute included in the CBC exercise.

Data Analysis

In this study, I performed data analysis using the SPSS software package and Sawtooth's SSI Web software. I performed four stages of data analysis. First, I counted the frequency of each response to the demographic questions and performed skewness tests. Second, I engaged in a reliability and validity analysis of the instrument that I developed. Third, I used statistical tests to compare differences in participant responses by demographic sub-categories. Fourth, I used multinomial logit analysis to interpret the data resulting from the conjoint analysis. Below is a detailed overview of the data analysis process that I used.

Descriptive Statistics

Frequencies. Frequencies are determined simply by counting the number of responses to choices associated with each question. I performed this analysis to gain a better sense of participant attributes, to determine which participants should be disqualified from the study given their lack of involvement in hiring employees, and to

determine if subsamples are large enough to perform the comparison of means analysis described later in this chapter.

Skewness. “Skewness measures the extent to which a distribution of values deviates from symmetry around the mean” (George & Mallery, 2010, p. 99). A skewness value no greater than ± 1.0 is considered acceptable for psychometric purposes (George & Mallery, 2010). Negative values signal data are skewed to the right and contain larger values while positive values suggest the inverse (George and Mallery, 2010). I performed this analysis to determine if any of the concepts I have selected as measures of gaining legitimacy in the Likert-like portion of the survey were normally distributed and therefore suitable for comparison of means tests.

Instrument Reliability and Validity for Likert-Like Questions

Reliability “is a statistical measure of reproducibility or stability of the data gathered by the survey instrument” (Litwin, 2003, p. 6). It is used to determine the extent to which an instrument will produce consistent results when used multiple times. Litwin (2003) identifies three types of reliability: test-retest, alternative form, and internal consistency. The first two tests were not used in this study because participants were only surveyed once, and I used only one question per concept to gauge participant acceptance of the various forms of pragmatic and moral legitimacy measured. This is a major limit of the survey design. Internal consistency reliability, however, was used and a description of the process to measure it is described below.

Internal reliability. I used Cronbach alphas to measure internal reliability between variables because alphas are most commonly used for measurement of Likert scales (Gliem & Gliem, 2003), require only one administration of the survey, and show

the measurement of error (Tavakol & Dennick, 2011). Cronbach alphas range from 0 to 1, with any coefficient > 0.70 acceptable according to George and Mallery (2010).

Internal reliability was calculated for each of the legitimacy constructs.

Principal component analysis. This analysis is used for theory confirmation and casual modeling and measures the covariation among variables used to measure a single component in order to assess the degree of construct unidimensionality. Factor analysis results in communality measures, or “the percent of variance in a given variable explained by all the factors jointly,” with a communality measure of .50 or lower indicating a need to consider removing the item from the survey (Garson, 2013, Kindle locations 540-541).

At least one researcher has reservations about using principal component factor analysis to assess unidimensionality (Hattie, 1995), but a report from TIMSS & PIRLS International Study Center (2011) argues that because there is not absolute criteria for determining unidimensionality, factor analysis, “with a single large factor accounting for the most of covariance among the items” (p.1), is a sufficient way of analyzing unidimensionality. Because I aimed to evaluate whether or not my constructs independently measured three different constructs, I performed principal component analysis. I first used the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy to ensure adequate sample size for this test and then ran principal component analysis to determine the number of components my Likert-like questions actually measured.

Correlations. Pearson’s correlation is used to measure the relationship between two variables. A positive correlation between 0 and +1 indicates that as one variable increases, the other does the same (George & Mallery, 2010). I used two-tailed

correlation statistics to gauge the strength of the relationships between the three constructs used to measure legitimacy types (Carifio & Perla, 2008). I furthermore used Pearson's correlations in an effort to determine the degree of construct independence by showing the relationships between the variables associated with each construct.

Efficiency of CBC exercise. Prior to launching my survey online, I performed an efficiency test in Sawtooth's SSI Web to assess the predicted reliability of the CBC exercise. Using dummy respondents, this software estimates the standard error of each parameter. According to Orme (2011), standard errors should be nearly equivalent and $<.05$ for main effects. My errors were nearly equivalent and averaged approximately .036, indicating an efficient design.

Validity. Validity is an attempt to measure the accuracy of survey (Litwin, 2003). In other words, does a survey actually measure what it intends to measure? Validity is typically determined using assessments of face, content, criterion, and/or construct validity according to Litwin (2003). These assessments all involve analyzing survey constructs in relation to some standard of accuracy such as expert opinion or an accepted form of scientific measurement. Given that my survey instrument is designed to measure acceptance of organizations about which little is currently known, assessing validity proved difficult. The literature review served as the only way of determining which constructs to include in the instrument.

Comparison of Means (Response to Question 1 and 2)

A t-test "is a procedure used for comparing sample means to see if there is sufficient evidence to infer that the means of the corresponding population distributions also differ" (George & Mallery, 2010, p. 134). Likewise, "analysis of variance

[ANOVA] is a procedure used for comparing sample means to see if there is sufficient evidence to infer that the means of the corresponding population distributions also differ” (George & Mallery, 2010, p. 144). Once reliability tests were complete, I performed one-way ANOVAs and two-way, independent sample t- tests to assess if there was a significant difference in the mean rating of each dependent variable listed in Tables 4 through 6 based on MOOC awareness, educational level, educational background, age, geography, and industry. This analysis was performed to help me answer my first and second research questions. I used a value of $p < .05$ to determine statistical significance.

Conjoint Analysis: Statistical Tests (Responses to Question 2 and 3)

I used multinomial logit model to arrive at the results of the CBC portion of my study, which, in turn, helped me address my first and third research questions. The multinomial logit model applies when study participants select a single product or choice from multiple options in a choice set (Greenacre, 2013). My study contained six choice sets with four job candidate profiles and a null option.

Multinomial logit analysis calculates the probability of selection based on the alternatives available for selection and the value or utility that each individual places on all alternatives available for selection (Bakken & Frazier, 2006). The Sawtooth Software package is designed to perform these calculations. More specifically, the software builds an equation for preferences β in terms of choice probabilities p , using the following formula (Papies, Eggers, & Wlömert, 2011):

$$p(i|J) = \frac{\exp(\beta \times X_i)}{\sum_{j=1}^J \exp(\beta \times X_j)}$$

The candidate selected, i , is chosen from a pool of candidates, J , and X_j describes the specific qualifications, represented by j , of the candidate selected (Papies, Eggers, & Wlömert, 2011).

Through use of a multinomial logit model, I was able to measure main effects (e.g., what employment qualification employers prefer most). In other words, I was able to assess whether traditional post-secondary education or work experience is likely to be perceived by employers as more legitimate than MOOC completion (a barrier to MOOCs becoming legitimized). In other words, this analysis was designed to help me respond to my first research question: What are the barriers to MOOC providers becoming legitimized and consequently institutionalized by human resource personnel, if any?

In addition, through multinomial logit regression, I was able to measure the interactions between MOOCs and other variables. Measuring such interactions is another advantage of using CBC analysis. As conjoint software producer Sawtooth (2013) explains:

Most conjoint methods are based on ‘main effects only’ models that ignore the existence of interactions. CBC, in contrast, *can* measure two-way interactions. Interactions occur when the net utility effect of levels from two separate attributes is significantly more or less than what would be predicted by summing their main effect parts. (p. 4)

To exemplify this statement, if MOOCs and on-the-job experience combined have more utility to human resource personnel than education, a multinomial logit model will detect this tendency—something other conjoint analysis models are typically unable to uncover. If such interactions are found to exist, this may suggest that MOOCs are gaining

legitimacy, not in competition with, but as a supplement to traditional means of qualifying for employment. In other words, this analysis provided the data needed to respond to my third research question—are there any conditions under which human resource personnel view MOOC completion as a preferred employment credential?

Chapter Summary

This chapter provided an overview of the methods that I used to conduct my research, including participant selection and recruitment process, a description of the research instrument, and an explanation of statistical methods used. Human resource personnel located in 74 metropolitan areas were recruited through email to participate in a two-part, self-designed survey. The survey contained a Likert-like rating of MOOC characteristics and a CBC exercise. Independent and dependent variables for this survey and statistical tests used to measure survey validity and answer my research questions were described in detail in this chapter. Chapter 4 contains a detailed review of this study's statistical findings.

CHAPTER IV

DATA ANALYSIS

Review of Research Purpose and Research Questions

This dissertation aims to assess the degree of human resource personnel's acceptance of Massive Open Online Course (MOOC) providers. As argued in Chapter 1, this study is a critical part of understanding whether MOOCs offer a viable and sustainable form of education because employer buy-in is essential to MOOCs' success (Dellarocas & Van Alstyne, 2013; Hollands & Tirthali, 2014a; Mangan, 2012; Marshall, 2013). To operationalize this study, I designed a survey instrument based on portions of Suchman's (1995) taxonomy of the legitimacy process and on literature devoted to uncovering how external stakeholders begin to accept a new organization (i.e., how legitimacy is gained).

The survey I designed had three sections: demographic questions, a Likert-like section that allowed participants to rate their acceptance of MOOCs based on key characteristics, and a choice-based conjoint (CBC) exercise. During the CBC exercise, participants selected the most qualified job applicant from a pool of mock candidates—some with MOOC credentials. The survey design was influenced by two factors. First, I crafted the survey in response to the literature on how legitimacy is gained, which, when studied in aggregate, suggests that a combination of a Likert-like measure of participant acceptance and a simulation exercise yields richer insight into the degree of participant acceptance.

The literature also suggests that pragmatic and moral legitimacy are most prevalent during an organization's infancy.

Second, I built the survey to respond to the specific research questions that I hoped to answer, which are as follows:

- Do human resource personnel's perceptions of MOOC providers' legitimacy differ by age, geographic sector, prior knowledge of MOOCs, industry, education acquisition method or education level?
- What are the barriers to MOOC providers becoming legitimized and consequently institutionalized by human resource personnel, if any?
- Do human resource personnel prefer job applicants that have a combination of traditional employment credentials and MOOC credits more than applicants with traditional employment credentials alone?

Answers to these questions, in aggregate, are designed to help inform the extent to which MOOC providers are gaining legitimacy among human resource personnel.

This chapter presents this study's findings. To begin, I provide an overview of the descriptive characteristics associated with the sample of participants who took the survey and skewness test. I then demonstrate the reliability of the Likert-like portion of the survey using the tests described in Chapter 3. As a reminder, the reliability of the CBC exercise was tested during the design phase of the study, and Chapter 3 explains how I concluded that the exercise was an efficient model for measuring choice. The last two sections of this chapter are solely devoted to examination of correlations tests of participant responses to the Likert-like questions and data analysis of the CBC exercise.

Characteristics of the Sample

While I had aimed to collect 300 total responses, after six months of data collection without reaching my target, I reevaluated my goal, choosing to concede some statistical power in order to begin data analysis. In total, 143 participants began the survey. Of this total, I estimate that less than 1% of participants responded to the survey through social media and the remainder (99%) responded through direct email invitations.

While 143 respondents began my survey, only 118 finished it, and I discarded the responses of any participants who did not finish the survey. Of the 118 responses remaining, 6 more were disqualified because these participants reported that they had no experience hiring and did not work in the human resources field, leaving a total of 112. Remaining participant characteristics are summarized in Table 9.

Table 9. Demographic Characteristics of Participants ($N= 112$)

Characteristic	<i>n</i>	%
Sex		
Male	26	23.2
Female	86	76.8
Geographic Location		
Midwest	35	31.3
Northeast	16	14.3
South	26	23.2
West	35	31.3

Table 9. cont.

Characteristic	<i>n</i>	%
Age		
33 and under	11	9.8
34-49	47	42.0
50-68	52	46.4
69+	2	1.8
Education		
High school	0	0.0
Some college	6	5.4
Associate's degree	1	0.9
Bachelor's degree	45	40.2
Master's degree or higher	60	53.6
Formats of College Coursework		
On campus		
Yes	106	94.6
No	6	5.4
Online		
Yes	50	44.6
No	62	55.4
Blended (combination of online and face-to-face)		
Yes	77	68.8
No		
Other		
Yes	6	5.4
No	106	94.6
Industry		
Manufacturing	15	13.4

Table 9. cont.

Characteristic	<i>n</i>	%
Agriculture, forestry, fishing, hunting, and mining; Construction	3	2.7
Wholesale trade; Transportation and warehousing utilities	6	5.4
Information; Finance and insurance, and real estate, and rental and leasing; Professional, scientific, and management, and administrative, and waste management services	44	39.3
Education services, healthcare, and social assistance; Public administration	31	27.7
Retail trade; Arts, entertainment, and recreation, and accommodation, and food services; Other services, except public administration	12	10.7
Missing	1	.9
Position		
Human resources manager/director	72	64.3
Human resources staff	14	12.5
Hiring manager	1	.9
Other	25	22.3
Prior knowledge of MOOCs		
Yes	53	47.3
No	59	52.7

The above descriptive shows a sample comprising a majority of women—a finding that is consistent with previous studies on the demographic composition of the human resources profession (Ramirez, 2012). The vast majority of the sample has at least a bachelor's degree, which is consistent with U.S. Census Bureau's report on entry-level requirements for this profession (2014). Slightly less than half of the sample has

taken a college class or classes exclusively online, and 35% of participants have taken a course in a blended environment.⁴ Participants are almost evenly distributed by geography but are primarily employed in two industry categories—those that include information, finance, healthcare, and education. When asked if participants had any knowledge of MOOCs prior to taking the survey, 47.3% reported that they had such knowledge and 52.7% reported that they did not.

While not included in Table 9, participants were also asked to list how many years they had been involved in hiring. Many appeared to be mid-career human resource personnel ($M=16.10$, $SD=9.65$). This finding is perhaps reinforced by the high majority of study participants ages 34-68.

Skewness and Means

To begin testing the reliability of the instrument used for the Likert-like portion of the survey, I performed a skewness test to assess whether my data resembled a normal distribution. A value of zero indicates that the distribution is perfectly balanced and values ± 1.0 are considered acceptable (George and Mallery, 2010). Negative values signal data are skewed to the right and contain larger values while positive values suggest the inverse (George and Mallery, 2010).

I performed skewness tests for all the Likert-like questions, finding all were skewed. The skewness of responses to all questions were statistically significant with all the z-scores reported in Table 10 above ± 1.96 . This means that responses to the Likert-like portion of the survey were non-normally distributed.

⁴ Participants had the option of selecting multiple options for learning environment questions. For example, a participant could select that s/he has taken college coursework on campus, online, and in a blended environment.

Table 10. Mean and Skewness for Likert-Like Legitimacy Questions

Questions	μ	SD	Skew	z	β_2	Frequency of Responses				
						1	2	3	4	0
Moral legitimacy										
1. Access	3.36	.80	-1.33	-5.68*	1.61	5	6	41	55	5
2. Personal growth	3.55	.74	-1.73	-7.39*	2.59	3	7	25	72	5
3. Global diversity	3.52	.69	-1.47	-6.26*	2.08	2	6	33	65	6
Pragmatic legitimacy: communication										
4. Costs	3.45	.78	-1.35	-5.77*	1.21	3	10	30	64	6
5. New knowledge	3.34	.80	-1.29	-5.87*	1.16	5	7	32	49	19
6. World workforce	3.41	.77	-1.39	-5.79*	1.79	4	6	37	57	8
Pragmatic legitimacy: networking										
7. AAU members	3.54	.76	-1.75	-6.97*	2.61	3	6	21	62	20
8. Business partners	3.53	.71	-1.54	-6.23*	2.15	2	6	27	60	17
9. Instructors	3.57	.76	-1.95	-8.02*	3.55	4	4	23	68	13

$z^* > 1.96$

The statistically significant skewness of the above responses are likely attributed to the favorable way in which MOOCs were characterized in the survey items. Given these results, the question became whether or not I would be able to perform comparison of means tests—tests I had planned to conduct to answer my first and second research questions.

Comparison of means tests traditionally assume that data are normally distributed (Norman 2010). Many scholars argue, however, that non-normally distributed data may still be analyzed using parametric tests. Norman (2010) argues that “parametric methods examining differences between means, for sample sizes greater than 5, do not require the assumption of normality and will yield nearly correct answers even for manifestly nonnormal and asymmetric distributions like exponentials” (p. 628). Furthermore, Lei and Lormax (2005) argue that skewness values of $|1.0|$ to $|2.3|$ are only moderately nonnormal. With moderately skewed data, ranging from -1.29 to -1.95, I was able to proceed with comparison of means analysis, which is described later in this chapter.

Reliability Tests

Internal reliability tests are conducted to measure the extent to which survey variables should be aggregated together as constructs. To make these determinations, I analyzed Cronbach alphas to test internal consistency of my three legitimacy constructs. I then conducted principal component analysis to determine the number of independent constructs contained in my survey. The results of all tests are contained respectively in Tables 11, 12, and 13 below.

The internal reliability tests demonstrated that all constructs and their respective variables were highly correlated. Indeed, as demonstrated by Table 11, interrelatability test between constructions yielded high Cronbach alphas, with $\alpha = .90$ for moral legitimacy, $\alpha = .85$ for pragmatic communication action questions, $\alpha = .90$ for network formation questions. Acceptable thresholds for Cronbach alphas are any coefficient $>.70$ (George and Mallery, 2010). The tests also showed statistically significant Pearson’s correlations between variables, demonstrating that all three constructs had close

correlations that did not occur by chance (see Table 11). The Pearson's correlations within and between constructs were also high (See Table 12). The high correlation among all variables in aggregate prompted me to perform principal component analysis to determine construct independence (Table 13).

Table 11. Correlation of Subscale Constructs and Measures of Internal Consistency of Legitimacy Characteristic Questions

Construct Number	Subscale Constructs	C1.	C2.	α
C1.	Moral legitimacy q1, q2, q3			.90
C2.	Pragmatic communication actions q4, q5, q6	.81*		.85
C3.	Pragmatic network formation q7, q8, q9	.81*	.85*	.90

*p<.05

Table 12. Intercorrelations for Dimensions of Moral Legitimacy, Pragmatic Communication, and Network Formation

Questions	Moral			Pragmatic Comm			Network		
	1	2	3	4	5	6	7	8	9
1. Access	--								
2. Personal growth	.75*	--	.						
3. Global diversity	.74*	.79*	--						
4. Costs	.63*	.59*	.62*	--					
5. New knowledge	.66*	.63*	.62*	.65*	--				
6. World workforce	.69*	.64*	.71*	.64*	.69*	--			

Table 12. cont.

Questions	Moral			Pragmatic Comm			Network		
	1	2	3	4	5	6	7	8	9
7. AAU members	.60*	.67*	.65*	.72*	.70*	.61*	--		
8. Business partners	.68*	.66*	.69*	.73*	.68*	.75*	.73*	--	
9. Instructors	.73*	.77*	.76*	.61*	.64*	.71*	.75*	.78*	--

*p<.05

To conduct principal component analysis, I needed to ensure I had a large enough sample size for this statistical test. To do this I ran Kaiser-Meyer-Olkin (KMO) analysis, which measures if the differences in partial correlations are small enough for distinct factors to emerge during factor analysis with a range of >.60 considered sufficient and >.08 considered highly factorable (Garson, 2013). The KMO for my data set was .92, which allowed me to proceed with factor analysis.

Upon conclusion of this test, only one eigenvalue was >1.0, the threshold for determining if the variable is significantly impacting the variation in the sample (Garson, 2013). In other words, only one variable of the nine analyzed accounted for the majority of the variation in the data gathered—an indication of unidimensionality (TIMSS & PIRLS International Study Center, 2011). This suggests that all my variables are measuring only one item, legitimacy, and should be aggregated together when performing parametric tests rather than combined to form three separate constructs. Table 13 summarizes the findings of the principal component analysis.

Table 13. Eigenvalues and Percentages of Variances with Each Component

Component	Eigenvalues	% of Variance
1	6.60	73.40
2	.59	6.57
3	.40	4.43
4	.37	4.01
5	.35	3.88
6	.22	2.41
7	.18	2.03
8	.16	1.77
9	.13	1.46

Comparison of Means

In order to determine which means of subsamples to compare, I carefully reviewed the frequency table (Table 9). I determined that differences between subsamples were too small for comparison in the case of participants' sex, on-campus college experience, blended college experience, and current title. Many of the subsamples were, however, evenly divided allowing for analysis. For example, 47.3% of respondents reported having prior knowledge of MOOCs and 52.7% reported that they were unaware of MOOCs prior to the study. Geography and online education had similar balanced representation, and I therefore selected them for comparison of means analysis.

In some cases, I combined demographic subsamples for purposes of comparison. For example, I compared age by condensing participants into two groups: those under 50 and participants 50 and over. Data were also combined to compare groups that had a

master’s degree or above to those who had less than a master’s degree and to compare participants by industry.

Given that principal component analysis suggested that my instrument was unidimensional, I ran all comparison of means tests twice, once with and once without constructs. I did this in an attempt to determine if the constructs I had identified for measuring legitimacy revealed any nuances of the data that were undetectable when grouping all dependent variables together. The results of all comparison of means tests are included in Tables 14 through 29.

T Tests

Tables 14 through 21 contain independent sample, two way t tests comparing participants by age, exposure to online college courses, education level, and MOOC awareness. No significant differences between subpopulations were found when performing these analyses using one construct and when using three constructs. The largest differences were based on education level. Using data from the one construct analysis for comparison, participants with a bachelor’s degree or less numerically preferred MOOCs ($M = 3.58$) more than those with a master’s degree or higher ($M = 3.39$). However, differences were non-significant, $t(98.65) = 3.64, p = .11$.

Table 14. Differences between Participants Based on Age with Constructs

Legitimacy measure	≤ 49		≥ 50		<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen’s d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Moral legitimacy	3.50	.66	3.45	.70	106	.32	.75	.07
Pragmatic communication	3.46	.63	3.35	.77	105	.85	.40	.16

Table 14. cont.

Legitimacy measure	≤ 49		≥ 50		<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Network formation	3.64	.57	3.45	.77	97	1.46	.15	.30

* $p < .05$

Table 15. Differences between Participants Based on Age without Constructs

Measure	≤ 49		≥ 50		<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Legitimacy	3.53	.56	3.42	.70	106	.83	.41	.17

* $p < .05$

Table 16. Differences Between Participants' Participation in Online Courses with Constructs

Legitimacy measure	No Online Courses		Online Course(s)		<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Moral legitimacy	3.45	.69	3.50	.67	106	-.38	.71	-.07
Pragmatic communication	3.40	.72	3.41	.70	105	-.10	.92	-.03
Network formation	3.52	.69	3.56	.68	97	-.23	.82	-.06

* $p < .05$

Table 17. Differences Between Participants' Participation in Online Courses without Constructs

Measure	No Online Courses		Online Course(s)		<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Legitimacy	3.47	.65	3.49	.63	106	-1.10	.92	-.03

**p*<.05

Table 18. Differences between Participants Based on Education Level with Constructs

Legitimacy measure	Bachelor's or less		Master's or more		<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Moral legitimacy	3.55	.52	3.42	.78	106	1.04	.30	.20
Pragmatic communication	3.52	.52	3.31	.81	105	1.70	.09	.32
Network formation	3.68	.649	3.44	.78	97	1.83	.07	.37

**p*<.05

Table 19. Differences between Participants Based on Education Level without Constructs

Measure	Bachelor's or less		Master's or more		<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Legitimacy	3.58	.45	3.39	.75	106	1.63	.11	.31

**p*<.05

Table 20. Differences between Participants Based on MOOC Awareness with Constructs

Legitimacy measure	No Prior Knowledge		Prior Knowledge		<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Moral legitimacy	3.53	.57	3.42	.77	106	.89	.37	.16
Pragmatic communication	3.42	.60	3.38	.79	105	.30	.76	.06
Network formation	3.62	.60	3.47	.75	97	1.10	.28	.21

**p*<.05

Table 21. Differences between Participants Based on MOOC Awareness without Constructs

Measure	No Prior Knowledge		Prior Knowledge		<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Legitimacy	3.52	.55	3.44	.72	106	.72	.47	.12

**p*<.05

ANOVAs

Tables 22 through 25 contain one-way ANOVA tests to compare participants by industry. To conduct these ANOVAs, I needed to combine underrepresented industry categories to better balance the size of each group compared. Industry Group 1 included manufacturing; agriculture, forestry, fishing, hunting, and mining, construction; transportation, warehousing, utilities, or wholesale trade; and retail trade, arts, entertainment, and recreation, and accommodation, and food services. Industry Group 2 included information, finance and insurance, and real estate, rental and leasing,

professional/administrative services, waste management. Industry Group 3 included public administration, education, social services, or healthcare.

The sample of homogeneity of variance for industry was partially violated when comparing means using three constructs under Levene's F test $F(2, 104) = 5.46, p = .06$ for moral legitimacy, $F(2, 103) = 1.84, p = .16$ for pragmatic communication, and $F(2, 95) = 10.15, p < .001$ for networking. Homogeneity of variance was also violated when comparing means using one construct under Levene's F test $F(2, 104) = 7.55, p = .001$. I therefore used the Welch's adjusted F ratio, finding no significance when three constructs were used with $F(2, 54.73) = 1.93, p = .16$ for moral legitimacy; $F(2, 61.17) = 2.10, p = .13$ for pragmatic communication; and $F(2, 44.65) = 2.64, p = .08$ for networking. I also found no statistical significance when one construct was used $F(2, 53.59) = 2.27, p = .11$. Given these findings, no post hoc tests were conducted.

Table 22. Means and Standard Deviations for Legitimacy Characteristics by Industry with Constructs

Variable	Group 1		Group 2		Group 3	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Moral legitimacy	3.30	0.82	3.60	0.41	3.51	0.78
Pragmatic communication	3.20	0.81	3.54	0.55	3.45	0.74
Network formation	3.39	0.81	3.70	0.37	3.47	0.84

Table 23. One-Way Analysis of Variance Summary Table for Preference for Legitimacy Characteristics by Industry with Constructs

Industry Group and Source	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Group 1			(2, 104)		
Between	1.78	.89	1.94	.15	.04
Within	47.57	.46			
Group 2			(2, 103)		
Between	2.17	1.09	2.22	.11	.04
Within	50.32	0.49			
Group 3			(2, 95)		
Between	1.93	.97	2.13	.12	.04
Within	43.06	.45			

Table 24. Means and Standard Deviations for Legitimacy Characteristics by Industry without Constructs

Variable	Group 1		Group 2		Group 3	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Legitimacy	3.30	0.77	3.60	0.37	3.50	0.74

Table 25. One-Way Analysis of Variance Summary Table for Preference for Legitimacy Characteristics by Industry without Constructs

Industry Group and Source	<i>SS</i>	<i>MS</i>	<i>F</i> (2, 104)	<i>p</i>	η^2
Between	1.75	.88	2.19	.12	.04
Within	41.68	.40			

Tables 26 through 29 contain ANOVAs comparing participant responses by geography. Here, the homogeneity of variance was tested and satisfied under Levene's *F*

test using three constructs: $F(3, 104) = .06, p = .98$ for moral legitimacy, $F(3, 103) = .45, p = .72$ for pragmatic communication, and $F(3, 95) = 1.12, p = .34$ for networking and when using one construct $F(3, 104) = .40, p = .75$. Results were not statistically significant using three constructs: $F(3, 104) = .53, p = .67, \eta^2 = .01$ for moral legitimacy; $F(3, 103) = .31, p = .82, \eta^2 = .001$ for pragmatic communication; and $F(3, 95) = .18, p = .91, \eta^2 = .01$ for pragmatic communication. Results also were of no significance when using one construct $F(3, 104) = .48, p = .69, \eta^2 = .01$. No post hoc testing was performed. Overall, the non-significant results of the ANOVA may again speak to the lack of variability in the data.

Table 26. Means and Standard Deviations for Legitimacy Characteristics by Geographic Location with Constructs

Variable	Midwest		Northeast		South		West	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Moral legitimacy	3.50	0.73	3.58	0.64	3.56	0.64	3.38	.69
Pragmatic communication	3.39	0.77	3.50	0.65	3.45	0.65	3.32	.72
Network formation	3.54	0.79	3.64	0.42	3.56	0.59	3.48	.74

Table 27. One-Way Analysis of Variance Summary Table for Preference for Legitimacy Characteristics by Geographic Location with Constructs

Location and Source	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Moral legitimacy			(3, 104)		
Between	.74	.25	.53	0.67	.01
Within	48.64	.47			

Table 27. cont.

Location and Source	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Pragmatic Communication			(3, 103)		
Between	.47	.16	.31	0.82	.00
Within	52.02	.51			
Network Formation			(3, 95)		
Between	.26	.09	.18	0.91	.01
Within	44.94	.47			

Table 28. Means and Standard Deviations for Legitimacy Characteristics by Geographic Location without Constructs

Variable	Midwest		Northeast		South		West	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Legitimacy	3.47	0.70	3.60	0.50	3.53	0.59	3.38	.68

Table 29. One-Way Analysis of Variance Summary Table for Preference for Legitimacy Characteristics by Geographic Location without Constructs

Location and Source	<i>SS</i>	<i>MS</i>	<i>F(3, 104)</i>	<i>p</i>	η^2
Between	.60	.20	.48	0.69	.01
Within	42.86	.41			

Conjoint Analysis

In addition to analyzing participants' acceptance of MOOCs based on rating MOOC characteristics, participants completed a choice-based conjoint exercise in which they were asked to select the most qualified job applicant from a pool of mock applicants six times to maximize data collection. I chose six sets based on a study conducted by

Tang and Grenville (2010) who found that after six to eight choice sets participant responses become inconsistent likely due to fatigue. Each mock applicant was described using three characteristics: educational background, number of MOOCs completed, and experience. There were four different levels associated with each of these attributes randomly selected by Sawtooth's SSI Web software to create unique choice sets for each participant.

Once I had completed gathering data, I used Sawtooth's SSI web software to build a multinomial logit model from the data set. During this analysis, the software computes coefficients called part-worth utilities for each level of attribute being measured (Sawtooth Software, 2014). It uses the following formula to perform this analysis.

$$p(i|J) = \frac{\exp(\beta \times X_i)}{\sum_{j=1}^J \exp(\beta \times X_j)}$$

In the formula, preferences β determine choice probabilities p . The candidate selected is represented by i and the pool of candidates is designated by J (Papies, Eggers, & Wlömert, 2011). X_j describes the specific qualifications, j , of the candidate selected (Papies, Eggers, & Wlömert, 2011).

Utilities are determined by estimating the best fit of respondents' answers across all respondents and tasks, starting with a computation of zero and iterating in steps of one until the model stops improving or the software reaches the maximum number of iterations set by the researcher (Sawtooth Software, 2014). In the case of my study, six iterations were completed after which the model stopped improving.

The higher the utility score for each level, the more it was preferred by participants. Sawtooth's software also reports t -ratios for each utility score, with a value

± 1.96 suggesting statistical validity; however, Orme (2013) cautions against relying too heavily on these ratios because utilities are calculated using a zero-centered approach, meaning that they primarily indicate if they are significantly different from zero and not always if they significantly impacted choice. Therefore, while I have marked statistically significant *t*-ratios when reporting my data, one should not draw conclusions based solely upon them. A better indicator of choice is simply assessing the utility score in relation to other utility scores associated with each attribute as shown in Table 30.

In Tables 30, each level of an attribute has been assigned a rank based on its utility value, allowing for an easy assessment of the most preferred variable within each attribute. The utility scores reveal a strong correlation between choice and candidates that had the highest level of education, experience, and MOOCs completed.

Upon review of the table, it is important to note that utility values should not be compared across categories. For example, it would not be correct to conclude that a candidate with a bachelor's degree will be selected at a higher frequency than a candidate that has more than the preferred level of experience. Relative importance is instead determined by using the coefficients to compare complete products—or, in the case of this study, candidates—allowing one to determine the relative importance of each level of attribute in terms of a percentage (Sawtooth, 1996). Average importance of each major attribute can be calculated in a similar way by taking the range of utilities for each attribute divided by the total range of utilities for the sample, and the values from this calculation are included in Table 30. This table shows that, overall, experience was the most preferred attribute, followed by education, and finally MOOCs.

Table 30. Average Importance of Attributes and Utility Value and Rankings for CBC Attribute Levels

Variable	Average Importance	Utility Value	SEM	<i>t</i> -Ratio	Ranking
Education	38.82%				
High school diploma		-1.48	.15	-9.98*	4
Some college		-.53	.11	-4.73*	3
Associate's degree		.12	.10	1.18	2
Bachelor's degree		1.90	.11	18.03*	1
MOOC Completion	17.23%				
No MOOCs		-.66	.11	-5.26*	4
Some MOOCs		-.13	.10	-1.26	3
Associate's degree equivalent		.06	.10	.63	2
Bachelor's degree equivalent		.73	.10	7.42*	1
Experience	43.95%				
None		-2.20	.19	-11.44*	4
Less than preferred		-.28	.12	-2.36*	3
Equivalent to preferred		1.02	.11	9.65*	2
More than preferred		1.46	.11	13.49*	1

* $t < |1.96|$

In addition to reporting utilities, SSI Web reports a log likelihood, a Chi square value, and root likelihood (RHL) for the multinomial logit model resulting from the iterations. These first two values measure whether or not all the attributes included in the

model have a significant impact on choice. The RHL value measures how well the equation fits the data, and significance will vary based on the number of attributes included in the equation. For a three-attribute model, which is the model used in this study, Chrzan (2014) explains that RHLs over .33 are significant, meaning that there is a strong likelihood that the equation fits the data. The Chi square and RHL for my model were both significant at $\chi^2(9, N = 112) = 871.43, p < .001$ and RHL=.38 respectively.

Interactions

While the above model was found to be statistically significant, Sawtooth (2014) suggests examination of interaction effects to determine if it can further be improved. Because I was interested in analyzing such effects (e.g., examining whether two effects, such as MOOCs and experience, when combined potentially have a greater influence preference), I chose to perform additional analysis associated with interactions. To proceed, I first ran Sawtooth's choice count analysis. This software simply reports ratios based how often participants choose certain levels of attributes and interactions of attribute levels divided by the number of times each option or combination of options was available. It also calculates the statistical significance of these choices to provide an initial indication of interactions that should be included in the multinomial logit equation. These choice counts and interactions are displayed in Figure 1.

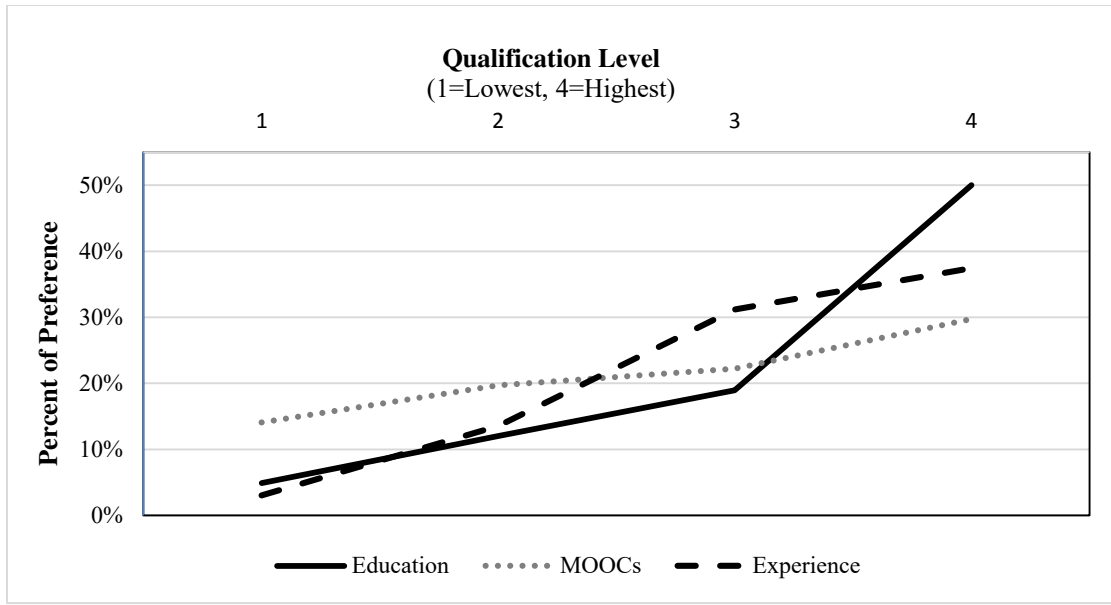


Figure 1. Percentage of Preference for Main Effect Qualifications

While the graph shows several interactions, only two were potentially statistically significant: (a) education and MOOC completion and (b) education and experience.

The potential significance of these interaction effects are better demonstrated in Figure 2. This graph shows main effects and interaction effects that were selected at least 20% or more of the time the qualification(s) were included in a choice set. Notably, while education and experience combined had the largest effect on preference, education and MOOCs combined influenced preference in more categories. The complete results of the choice count analysis are included in Appendix I. To determine whether or not interaction effects significantly impacted the multinomial logit model, additional analysis was required. A description of the steps involved in this analysis comprises the remainder of this chapter.

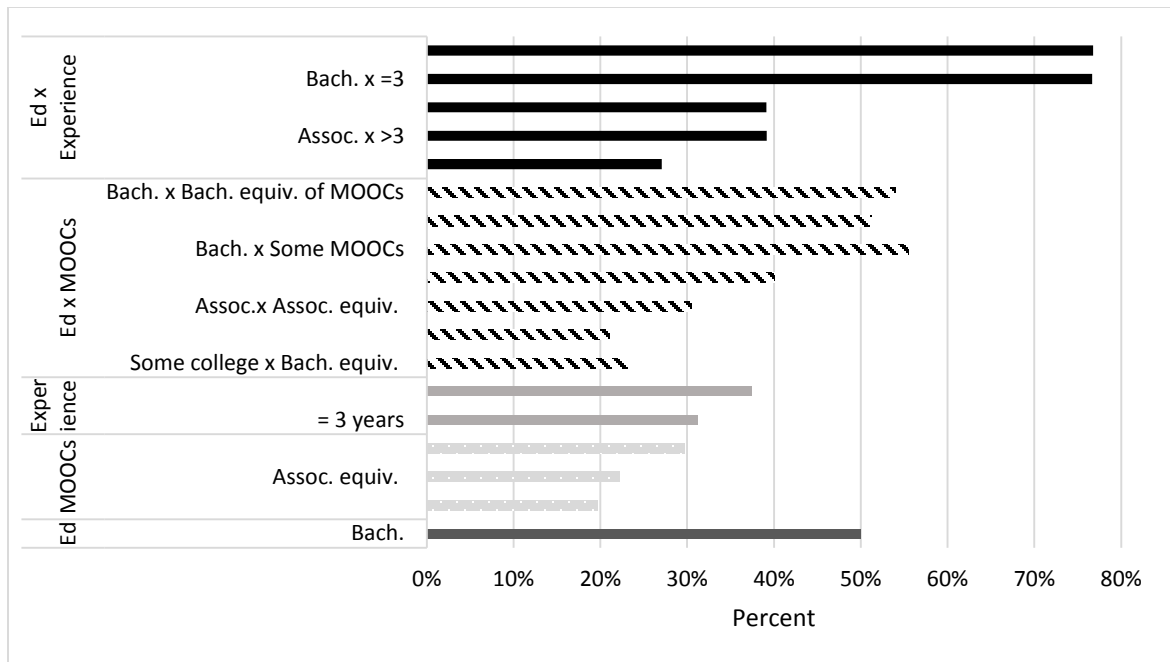


Figure 2. Qualifications Selected By Participants $\geq 20\%$

Sawtooth (2014) recommends that interaction effects found during choice count analysis be run through multinomial logit analysis software and 2-log likelihood tests be performed since choice do not capture the nuances of potentially significant interactions. This analysis determines if the addition of interactions significantly impacted the difference in the Chi squares in the regression models since choice counts analysis does not accurately predict significant interaction effects. The 2-log likelihood test involves finding the difference between the original Chi square and the Chi square of the multinomial logit with interactions included, doubling this difference, and using a Chi square table to assess the differences based on the added degrees of freedom (Sawtooth, 2014).

I performed the 2-log likelihood test three times, once to measure the impact of the interaction of education and experience on the model, the interaction of education and MOOCs on the model, and the effect of including both interactions. Only one test proved

significant—the interaction of education and MOOCs with $\chi^2(9, N = 112) = 29.38, p < .001$. The resulting utility scores, rankings, and average importance of this new model are included in Table 31. The Chi square and RHL for this refined model were both significant at $\chi^2(9, N = 112) = 900.81, p < .001$ and RHL=.39 respectively.

It is noteworthy that education became the first attribute of importance under this new model. Under the new model, the importance of experience decreased. The highest level of each attribute continued to be the most preferred.

Table 31 also ranks interaction effects by impact on decision making. Interpretations of these effects are as follows. When utility values of main effects are low and utilities for interaction effects are negative or low, the education-MOOC interaction effect appears to have either a small or a negative impact on selection (e.g., high school diploma and some MOOCs). When utilities of the interaction effects are high (e.g., bachelor's x some MOOCs), preference for candidates possessing these qualifications increased. The last two values in the chart, bachelor's x associate's equivalent of MOOCs and bachelor's x equivalent of bachelor's in MOOCs, do not signal the lack of an interaction. Instead, they appear to be offsetting the high utility of the combined main effects of bachelor's degree x associate's equivalent or bachelor's equivalent of MOOCs. Overall, there appears to be a positive correlation between preference and applicants who have only a high school diploma and who have taken degree-equivalent MOOC credits. Based on the choice counts (Figure 2 and Appendix I), there also appears to be a positive correlation between preference and applicants with a bachelor's degree who have completed MOOCs.

However, the interaction effect utilities show minimal or even negative effects when an applicant possesses an associate’s degree and has completed MOOCs or has completed some college and some level of MOOC credits. This may speak to inconsistencies in participant decision making. Denstadli, Lines, and Ortúzar (2012), who studied participant decision making during CBC exercises, found that inconsistent selection patterns are a common characteristic and limitation of such simulation exercises. Further study is needed to determine if this split in preference for the education-MOOC interaction effects is recurring and perhaps intentional or unique to this study. If exclusive to this study, this split may be an indicator that some participants made choices arbitrarily or with an inconsistent set of selection principles.

Table 31. Average Importance of Attributes and Utility Value and Rankings for CBC Attribute Levels with Interactions

Variable	Average Importance	Utility Value	SEM	<i>t</i> -Ratio	Ranking
Education	35.22%				
High school diploma		-1.78	0.22	-8.22*	4
Some college		-0.49	0.13	-3.65*	3
Associate’s degree		0.25	0.12	2.13*	2
Bachelor’s degree		2.02	0.12	17.25*	1
MOOC Completion	16.16%				
No MOOCs		-0.80	0.18	-4.49*	4
Some MOOCs		-0.31	0.17	-1.81	3
Associate’s degree equivalent		0.16	0.13	1.28	2
Bachelor’s degree		0.94	0.11	8.31*	1

Table 31. cont.

Variable	Average Importance	Utility Value	SEM	<i>t</i> -Ratio	Ranking
equivalent					
Experience	33.42%				
None		-2.16	0.19	-11.40*	4
Less than preferred		-0.30	0.12	-2.55*	3
Equivalent to preferred		1.00	0.11	9.45*	2
More than preferred		1.45	0.11	13.42*	1
Education x MOOCs	15.20%				
High school x No MOOCs		-0.27	0.45	-0.59	14
High school x Some MOOCs		-0.69	0.45	-1.54	15
High school x Associate's equiv MOOCs.		0.14	0.31	0.44	6
High school x Bachelor's equiv. MOOCs		0.81	0.26	3.09*	1
Some college x No MOOCs		-0.21	0.29	-0.74	13
Some college x Some MOOCs		0.12	0.25	0.45	7
Some college x Assoc.'s equiv. MOOCs		-0.06	0.21	-0.28	10
Some college x Bachelor's equiv. MOOCs		0.16	0.19	0.82	4
Associate's x No MOOCs		0.14	0.25	0.56	5

Table 31. cont.

Variable	Average Importance	Utility Value	SEM	<i>t</i> -Ratio	Ranking
Associate's x Some MOOCs		0.01	0.23	0.06	8
Associate's x Associate's equiv. MOOCs		0.00	0.20	-0.02	9
Associate's x Bachelor's. equiv. MOOCs		-0.15	0.18	-0.82	12
Bachelor's x No MOOCs		0.34	0.22	1.58	3
Bachelor's x Some MOOCs		0.56	0.21	2.61*	2
Bachelor's x Associates equiv. MOOCs		-0.08	0.18	-0.42	12
Bachelor's x. Bachelor's equiv. MOOCs		-0.83	0.17	-4.78*	16

* $t < |1.96|$

Summary

This chapter contained the findings of this study. More specifically, it reported on the reliability of the survey instrument used in this study. It then highlighted the data collected through use of this survey instrument and analyzed these data, first performing comparisons of means for the Likert-like questions related to MOOC characteristics. It used the data gathered during the CBC exercise to develop a logit model that predicts participant choice and ranks the importance of the three variables included in this exercise: education, MOOC completion, and experience. I performed both multinomial logit modeling and comparison of means in an attempt to answer this study's research

questions. With data analysis complete, Chapter 5 discusses the implications of my findings in relation to my research questions, reflects on modifications that could be made to improve the outcome of this study, and provides recommendations for future study.

CHAPTER V

DISCUSSION

In this chapter, I discuss the results of my study in relation to its three specific research questions. After explaining how the data relate to each question, I review this study's practical applications, potential theoretical contributions, delimitations and limitations, needed modifications, and implications for future study. This chapter ends by revisiting this study's overarching question: Are MOOCs gaining legitimacy among employers?

Analysis of Research Questions

Response to Research Question One

Do human resource personnel's perceptions of MOOC providers' legitimacy differ by age, geographic sector, prior knowledge of MOOCs, industry, education acquisition method or education level? To answer this question, I conducted several comparison of means analysis. After conducting these comparisons, I did not find any statistically significant differences between subsamples in this study. This may be attributed to lack of variability in survey questions and responses, which speaks to problems associated with the survey design. Issues relating to my survey design and possible solutions are addressed in the section of this chapter devoted to delimitations, limitations, and suggested study modifications.

Response to Research Question 2

What are the barriers to MOOC providers becoming legitimized and consequently institutionalized by human resource personnel, if any? As I explained in Chapter 1, in order for an organization to become institutionalized, stakeholders must understand and agree upon its purposes, validating it through normative systems (Zucker, 1983, 1988). Through the use of a self-designed survey instrument, I attempted to uncover the level of understanding, agreement about the purpose of, and normative systems associated with MOOCs from this study's sample population of human resource personnel. First, I asked participants to indicate whether or not they had prior knowledge of MOOCs, a means of gauging their basic understanding of these nascent organizations. Less than half (47.3%) reported that they had heard of MOOCs prior to taking the survey, an indication that one of the biggest barriers to MOOCs becoming legitimized and institutionalized may be awareness. Radford et al.'s (2014) study on employer acceptance of MOOCs arrived at similar findings. This study, which is summarized in Chapter 2, found that only 31% of participants were aware of MOOCs prior to participating in their study.

In addition to measuring awareness, I also asked participants to rate their acceptance of MOOCs based on several characteristics associated with moral and pragmatic legitimacy. Participants appeared to hold favorable opinions of MOOCs' characteristics, an inference drawn from the average rating associated with each Likert-like question and negative skewness values associated with each of them. As George and Mallery (2010) explain, negative skewness values signal data are skewed to the right. In the case of my survey, this means that participants generally were choosing values higher than two when rating MOOC characteristics. However, the validity of these data is

questionable. My survey items presented MOOCs very favorably. In fact, few would likely disagree with the benefits of MOOCs as presented in the survey, which may have falsely elevated the participant ratings. The likelihood that the responses to the Likert-like were disproportionately skewed becomes even more evident when assessed in relation to the outcome of the CBC exercise.

The CBC exercise revealed that MOOC completion, on its own, was the least desirable qualification in CBC exercise. In other words, participants in this study had much higher preferences for the traditional qualifications of education and experience than for MOOC completion. Based on these preliminary findings, existing assumptions about the characteristics necessary to qualify for employment do not appear to be disrupted by MOOC completion. As explained in Chapter 2, challenging assumptions is an important step in initiating change and gaining legitimacy according to Suddaby and Greenwood's study (2005). Consequently, a potential barrier to MOOCs becoming legitimized and institutionalized by employers is that they may not be challenging conventional logic about necessary employment credentials. Given that this is the first study to measure employer preference for MOOCs using a CBC exercise, additional data are needed to help support this claim.

Response to Research Question 3

Do human resource personnel prefer job applicants that have a combination of traditional employment credentials and MOOC credits more than applicants with traditional employment credentials alone? To answer this question, I assessed the interaction effects of the attributes included in the CBC exercise. As explained in Chapter 4, to determine these effects, I first performed a choice count analysis and then

multinomial logit modeling. In the end, only one interaction effect proved to significantly impact the choice prediction model presented in Chapter 4.

Applicants that have a high school diploma or bachelor's degree and complete MOOCs appear to be more qualified to prospective employers. In order for applicants with a high school diploma to take advantage of this possible interaction effect, they likely need to complete degree-equivalent MOOC credits. These findings may help support Radford et al.'s (2014) study, which found that employers viewed MOOC completion as a sign of personal tenacity, making an applicant a stronger candidate for employment. However, further simulation exercises and data collection are needed to bolster the supposition that employers view MOOC completion as a positive supplement to traditional educational credentials. This recommendation stems from the fact that my study is only the second to explore employer acceptance of MOOCs, and it uncovered inconsistencies in employer acceptance of the MOOC-education interaction effect.

When analyzing the CBC data, I found that applicants who have completed some college or an associate's degree benefitted minimally or, in two cases, negatively from MOOCs. This may point to inconsistencies in participant decision-making. Notably, Denstadli, Lines, and Ortúzar (2012), studying information processing during CBC experiments, found: "Only a few respondents used complete strategies in their choices, the majority put together different elements of heuristics and/or changed their approach during the completion of the task" (p. 438). This finding may explain the inconsistencies in my data and may speak to a potential limit of using CBC exercises to measure preference. Additional limitations and delimitations are discussed below.

Limitations, Delimitations, and Suggested Study Modifications

In Chapter 1, I highlighted major limitations and delimitations of this study. This section revisits the limitations and delimitations stated at the outset of my study, building on them based on lessons learned during my study. More specifically, I address limitations and delimitations resulting from convenience sampling, sample size, survey design, and data analysis. I also reflect on modifications that could be made to the study to possibly improve the validity of results.

Sampling

Part of the limitations and delimitations discussion in Chapter 1 centered on my sample. To reiterate, a delimitation associated with the sample was that I selected human resource personnel from major metropolitan areas as potential participants. This convenience sample was invited to participate via email and links posted on social media sites. Consequently, this study did not measure if MOOCs are gaining legitimacy among employers in small cities or rural areas and results reflected the views of participants that use email and/ or otherwise have a predilection for use of online technology.

My approach to sampling also posed limitations during the study. Due to convenience sampling, certain demographic categories were under or overrepresented. The sample was largely women with at least a bachelor's degree from two industry categories. These disproportionate characteristics forced me to aggregate subgroups of participants into larger groups in order to conduct many of the comparison of means tests. This may have masked unique perceptions held by underrepresented subpopulations.

Disparities in my sample may also be attributable to sample size. This study's sample size was influenced by low response rates from the population I selected.

Anecdotally, I learned the primary source of participants for this study, SHRM board and committee members, are inundated with survey requests, likely decreasing response rates. Lack of responses caused me to reduce my target response rate from 300 to 100 participants during the study, and this influenced the depth of my CBC analysis. Orme (2010) suggests a sample size of at least 300 when using CBC to study an unspecified population. With a very large sample—200 or more participants in each demographic category—I would have been able to compare preference between groups in the CBC exercise using latent class analysis (Orme, 2010; Sawtooth, 2014). This may have allowed for a more informed response to my third research question.

Instrumentation

This study's instrumentation posed the biggest limitation in this study. As explained in Chapter 1, it relied on self-reporting and was cross-sectional in design. Self-reporting poses the potential for participant bias. The cross-sectional design precluded measuring whether or not participant opinions are sustained over a period of time. Alone, these limitations may have been surmountable but the Likert-like portion of the survey characterized MOOCs very favorably, lacked variability, and skewed results.

The instrumentation for this study was new and crafted in an effort to measure the legitimacy of an emerging organization, MOOCs—something that had not been attempted before. The literature review suggested that in order to measure the legitimacy of an emerging organization, I needed to determine whether or not stakeholders viewed the organization as possessing pragmatic and moral legitimacy. The literature review further suggested that these forms of legitimacy are typically actualized through communication techniques and networking. I therefore chose to examine pragmatic and

moral legitimacy concepts woven into MOOC mission statements to identify constructs for my survey. I supplemented these constructs with examples of how MOOCs lived these mission statements, and these examples were extracted from a combination of news articles and MOOC press releases. I also relied on news reports to pinpoint specific MOOC networking efforts, and these actions also became survey constructs.

This approach to survey design was shortsighted. It resulted in MOOCs being represented very favorably in the survey. Furthermore, through this process, I identified several broad claims that participants were asked to rate based upon one example (e.g., MOOCs promote equality by providing educational access to anyone with Internet access). This poses problems from a reliability and variability perspective. As Lewin (2003) explains, “Although single items may be quicker and less expensive to administer, your data set will be richer and more reliable if you use several different items to gain information about a particular topic or behavior” (p. 20).

The CBC exercise had its own challenges and limitations. It provided no indication of the extent to which a selected candidate was preferred in relation to the others and offered no insight on participants’ rationales for choosing one candidate over another (Orme, 2013). It was furthermore conditioned on one scenario. Participants were asked to select a candidate for a mid-level position in which a bachelor’s degree was preferred. The predictive model resulting from data collected may have changed if a different hiring scenario had been presented to participants. Finally, participant preference for the MOOC-education interaction effect was inconsistent, which may indicate arbitrary decision making on the part of participants. Therefore, the CBC model that emerged from this study should be used with a high degree of caution if attempting

to gauge employer preference for job applicants. In other words, this model may not be generalizable and needs further testing to draw more informed inferences about participant choice patterns.

Data Analysis

As part of data analysis, I performed comparison of means tests on skewed data—tests that traditionally assume normally distributed data. I found empirical literature to support conducting parametric analysis of such data despite their skew (Norman, 2010; Lei and Lormax 2005), but this skew may have contributed to an overall lack of statistical significance between subgroups in my sample.

In addition, I chose to use multinomial logit modeling to compute the results of the CBC exercise in this study. This type of analysis has one overarching flaw, the “Independence from Irrelevant Alternatives” (IIA) problem (Sawtooth, 2014). Essentially, when the utilities resulting from the multinomial logit equation are placed into a market simulator to estimate preference, the model tends to overestimate the share of preferences for an attribute. Sawtooth explains this issue best with the following example:

Imagine a transportation market with two products, cars and red busses, each having a market share of 50%. Suppose we add a second bus, colored blue. An IIA simulator would predict that the blue bus would take share equally from the car and red bus, so that the total bus share would become 67%. (p. 889)

This issue can be overcome by using more sophisticated CBC analysis such as latent class or Hierarchical Bayes estimation, which computes utilities at group or

individual levels rather than aggregately like multinomial logit model (Sawtooth, 2014). However, using a more sophisticated approach to CBC analysis is sometimes infeasible and sometimes a trade-off because such approaches require either large samples to accurately arrive at a reliable model of predictability or they ignore the importance of interaction effects, instead trying to account for heterogeneity in the sample to explain attribute correlations. Sawtooth (2014) has developed tools to address the latter issue. Once I identified my interaction effects, I ran my data using Hierarchical Bayes estimation and found little change in the utilities contained in my prediction model, suggesting that despite its shortcoming, aggregated multinomial logit modeling was an appropriate choice for this study.

Suggested Study Modifications

There are several simple solutions that could have improved the results of this study. Increasing sample size through additional recruitment techniques and adding more questions to measure legitimacy constructs may have helped improve variability and reliability of responses to the Likert-like portion of this study. However, such steps alone, may not have been enough to help normalize the distribution of response.

Media coverage of MOOCs could have been analyzed in aggregate to identify not only pragmatic and moral legitimacy actions taken by MOOCs to gain legitimacy but also to find communication strategies used by MOOC critics to derail legitimation. The combination of these findings could have then be used as the basis for survey constructs to present participants with a more balanced understanding of MOOCs' organizational

successes and failures to date. In turn, this may have led to more balanced responses about the degree to which participants accepted MOOCs.

I also needed to find a way of assessing validity of instrument before administering it. A pilot study may have helped draw some very preliminary conclusions about construct validity. This form of validity, though typically established by working with the same instrument over several years, is determined by using the instrument in multiple settings, multiple times (Litwin, 2003). Content validity is accomplished by experts reviewing the instrument to ensure constructs are all-inclusive and necessary for measuring the topic of study (Litwin, 2003). This form of validity may have been assessed by asking for feedback on survey constructs from the handful of researchers who have studied MOOCs from an organizational perspective.

To address deficiencies in the CBC design, the second half of the study could have been redesigned as follows. The CBC exercise may have asked participants to explain their rationale for selection in each of the six choice sets. This may have helped explain inconsistencies in selection patterns, especially for the MOOC-education interaction effect. Responding to such questions, however, would have involved an increased time commitment to complete the survey. Given that participant recruitment already posed a challenge, the feasibility of adding additional, time consuming questions to the survey would have been questionable.

Another option would be to find an alternative to the CBC simulation. The literature suggested that CBC analysis is the preferred method of presenting participants with scenarios to gauge the legitimacy of an emerging innovation in relation to ideas and organizations already legitimized. However, this is not the only way of studying such

comparisons. Hypothetical hiring scenarios could be presented to employers describing various candidates, asking participants to rate the likelihood of selecting one of them chosen by the researcher from each scenario and based on a Likert-like scale. Applicants assessed by participants would possess either a high or low level of each attribute that the researcher intends to measure. Comparison of means tests could be ran to assess preference. This would significantly limit the possible number of choice sets. It might also help address the issue of participant fatigue because they would be assessing the employability of an applicant in relation to others rather than attempting to make a choice between several applicants.

Alternatively, the study could be structured similar to one conducted by Deming, Yuchtman, Abulafi, Goldin, and Katz (2014). This team measured acceptance of certain post-secondary degrees by conducting a field study. They created mock résumés in response to online job postings and measured employers' response rates. For the purposes of measuring acceptance of MOOCs, two mock résumés could be sent in response to each online job posting selected by the researcher—one highlighting a candidate that met minimum qualifications and one for a candidate that had minimum qualifications and MOOC credits. Such a study would allow a researcher to better gauge MOOC acceptance in real world scenarios but, like the other research alternatives proposed above, would provide little insight on the employer decision making process.

Practical Applications of Study

The findings of this study are very preliminary and inconclusive. Still, this study may offer a few practical implications for postsecondary education stakeholders. More specifically, this study may be somewhat instructive to higher education institutions,

MOOC providers, students, and job seekers. The implications for each group are discussed below.

Implications for Institutions and MOOC providers

Hollands and Tirthali's (2014a; 2014b) and O'Connor (2014) studied reasons institutions choose to offer MOOCs. These reasons included extending educational access, branding and marketing, and improving teaching and learning techniques. The findings of my CBC analysis, if they can be supported through additional evidence, may offer one more reason for institutions to offer MOOCs. Institutions may offer MOOCs to current students to set them apart in terms of employability from graduates who have not completed MOOCs.

However, institutions need to proceed with caution if relying on this possible benefit as the primary or sole reason for offering MOOCs. In this study, participant preference increased only marginally and sometimes even declined when an applicant had some college or an associate's degree and MOOC credits. As already explained, this finding may simply signal inconsistent decision making patterns—a limitation of CBC models. It should be further explored, nonetheless, as it may have implications for any college or university considering offering MOOCs as an outreach service or supplemental service to students currently enrolled.

For institutions that currently offer MOOCs, the implications of this study are this: Such institutions may need to devise and execute a plan for building employer awareness of MOOCs since 47.3% of participants in this study had no prior awareness of MOOCs. In Chapter 1, I highlighted several studies that contend that employer buy-in is essential to the sustainability of MOOCs (Hollands & Tirthali, 2014a; Dellarocas & Van

Alstyne, 2013; Marshall, 2013). Such buy-in begins with awareness. According to my review of legitimacy theory, this awareness campaign must clearly articulate the intended purpose of MOOCs, which then may allow employers to devise normative systems for validating MOOCs and help initiate the institutionalization process (Zucker, 1983, 1988).

Implications for Students and Job Seekers

The possible implications for MOOC students and job seekers are as follows. Employer preference appeared to increase when prospective employees with certain levels of education have also completed MOOC credits. In other words, job seekers with a high school diploma or bachelor's degree who have completed MOOC credits may increase their probability of employability. However, this study again found a lack of, or marginal preference for, applicants who have some college or an associate's degree and complete MOOCs. This is an area that needs further study to assess cause. If this inconsistency in preference is further validated and not attributable to irregular decision making by participants, it suggests that completion of MOOC credits may not be advantageous to all job seekers.

Theoretical Contributions

According to Suchman (1995), "Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (p. 574). Suchman contends that legitimacy can be studied through one of two lenses—the "strategic" camp in which legitimacy is viewed as an almost tangible construct that organizational leaders can measure and manipulate to serve their needs or the "institutional" camp in which legitimacy is viewed as a fluid construct to which an organization can only react. He

then offers insight on the purpose of studying and applying legitimacy theory—to help further validate and refine overarching patterns of how legitimacy is gained, maintained, and/or restored by evaluating the presence of pragmatic, moral, and cognitive legitimacy at different stages of an organization’s lifespan.

Chapter 2 of my study was specifically aimed at better understanding how legitimacy is gained from the perspective of external stakeholders. I reviewed a wide array of interdisciplinary studies devoted to this topic. I found that during an organization’s development stage, external stakeholders seek confirmation of pragmatic and moral legitimacy as a condition of accepting the organization (Bansal & Clelland, 2004; Cashore, Auld, & Newsom, 2003; Claasen & Roloff, 2012; Durocher et al., 2007; Lamberti & Lettieri 2011; Persson, Lundberg, & Andresen, 2011; Soobaroyen & Ntim, 2013). The presence of cognitive legitimacy at this stage is minimal, at best—a finding that puts pressure on Suchman’s (1995) contention that all three forms of legitimacy—pragmatic, moral, and cognitive—are always present at each legitimacy stage. This is the first theoretical contribution of this study.

The second theoretical contribution of this study relates to my findings on how legitimacy is actualized at the gaining stage. I found that organizations that are successful at gaining stakeholder acceptance communicate using techniques that accurately reflect stakeholder expectations, norms, and values (Bansal & Clelland, 2004; Dumitru, Albu, Dumitru, & Albu, 2014; Lurtz & Kreutzer 2014; Soobaroyen & Ntim 2013, Suddaby & Greenwood, 2005). I furthermore found stakeholders’ assessment of a new organization’s network potential (i.e., the pragmatic benefit of aligning oneself with

the organization) is critical in the gaining phase of legitimation (Chang, 2004; Cheng, 2010; Rao, Chandy, & Prabhu, 2008; Higgins & Gulati, 200; Jong, 2008).

The third theoretical contribution of this study is that it helps inform how the process of gaining legitimacy should and should not be measured. I found that when traditional survey methods are used (e.g., Likert scale), as was the case in the Gonzalez, Kennedy, and Cenzer (2007) study and the first part of Keller's (2011) empirical work, stakeholders tended to rate their acceptance of a new educational innovation high, leading to a premature conclusion that legitimacy had already been gained. When conjoint analysis is used, stakeholders must assess the education innovation in relation to traditional educational forms often favoring the latter. This finding was reached in studies conducted by Adams and Defleur (2005, 2006, 2007) and Keller (2011). It is further supported by the CBC analysis conducted in this dissertation.

In aggregate, these studies suggest that to best understand the degree of legitimacy possessed by emergent organization or innovation, one should conduct a two-part analysis. First, researchers should conduct an assessment of whether or not stakeholders accept the actions taken by an organization to gain legitimacy through a traditional survey. As exemplified by my study, one must be cautious when selecting constructs to measure pragmatic and moral legitimacy during this portion of the legitimacy study. Relying only on what an emerging organization is communicating about itself to measure acceptance likely yields skewed results.

The second phase of measuring legitimacy involves a comparative analysis that requires stakeholders to evaluate the emerging organization/innovation in relation to one that is fully institutionalized. Using this approach, the researcher may have a more

complete sense of whether the phenomenon being studied is indeed gaining legitimacy. This is because the researcher has information to gauge whether or not the new organization/innovation is disrupting tradition—a critical step in legitimation according to Zucker (1983, 1988)

Implications for Further Research

This study has a number of implications for further research. The limitations, delimitations, and suggested study modifications section of this chapter suggests a handful of possible research trajectories. These suggestions included expanding the sample size to allow for better comparisons between subsamples of this study's population, surveying employers in small cities and rural areas, refining the survey instrument to ensure a more balanced assessment of MOOC acceptance by participants, and modifying the CBC exercise to present employers with new hiring scenarios to assess the impact on preference. Below, I make two additional suggestions based on unexplored aspects of Suchman's (1995) legitimacy framework and on an aspect of MOOCs' function not addressed by this study. Before making these recommendations, it is important to note that the field of MOOC research is, especially from an organizational perspective, nearly wide open. Indeed, as discussed in Chapter 2, the majority of MOOC studies completed to date focus on teaching, learning, curriculum, and student outcomes.

This study only analyzed whether or not MOOCs are gaining legitimacy from the perspective of one group of external stakeholders. To better gauge whether MOOCs are indeed gaining legitimacy, additional studies are necessary to determine the extent to which other external and internal higher education stakeholders such as students, faculty, support staff, and administrators support MOOCs. A handful of studies on the

perspectives of internal stakeholders have already been conducted but, based on my findings, none have used a legitimacy framework (Christensen et al., 2013; Grajek, Bischel, & Dahlstrom, 2013; Hew & Cheung, 2014; Zheng, Rosson, Shih, & Carroll, 2014). Therefore, one outgrowth of this study may be developing a legitimacy framework to assess internal stakeholders' acceptance of MOOCs. Another option for measuring the internal stakeholders' acceptance of MOOCs might be to analyze it through the lens of Suchman's (1995) strategic camp. Both studies would contribute to a better understanding of MOOCs' potential role in postsecondary education and may also further help explain how legitimacy is gained within the context of higher education.

This study did not explore the role of MOOCs as platforms for professional development and continuing education. Studying the degree of acceptance for MOOCs in this capacity is necessary to gain a comprehensive sense of the role MOOCs are playing in education. A legitimacy framework may be suitable for carrying such a study since understanding MOOCs' role in continuing education requires assessing an emerging innovation in relation to long-standing, legitimized educational practices.

Summary

Is "MOOC madness" here to stay? This study was unable to produce evidence to answer this question. What the study reveals is this: Based on the preliminary findings of the CBC analysis conducted in this study, MOOCs are likely not disrupting higher education. The sample of employers participating in this study appear to prefer traditional qualifications—education and experience—when selecting applicants. In certain cases, MOOCs may serve as a complement to traditional education credentials based on a preliminary finding that employer preference for applicants with high school

diplomas and bachelor's degrees increased if the applicant completed MOOC credits, especially degree equivalents MOOC credits. These findings must be further studied in a manner that addresses the many limitations associated with this study before drawing inferences about MOOCs' impact on post-secondary education. In addition, given the overall lack of research on MOOCs from an organizational perspective, there is a need to analyze this emerging educational form using the wealth of theory in this field. Only then can higher education stakeholders begin to assess whether or not MOOC madness is here to stay.

APPENDICES

Appendix A
Key Contributors to Institutional Legitimacy Theory

Table 32. Key Contributors to Institutional Legitimacy Theory

Theorist	Focus	Findings
Parsons (1956, 1960)	Defining the core components of an organization and explaining how internal mechanisms legitimize the organization	<p>An organization is a system in pursuit of a goal (i.e., its output) utilized by another system. Organizations have four core features/functions:</p> <ol style="list-style-type: none"> 1. A value system to define and legitimize goals and functional patterns of the organization 2. Ability to procure resources 3. Operating procedures and/or mechanisms 4. Institutional patterns that link the organization to others
Stinchcomb (1965)	How social conditions impact organizational formation motivation, structure, and success	<p>Organizations form when:</p> <ol style="list-style-type: none"> 1. There is an identified better way of carrying out a function without a current vehicle for doing it. 2. There is a collective decision that the future will need the new organization to the extent that it is worth the investment. 3. At least one social group will benefit 4. There are resources available to build the organization. 5. The organization can succeed despite external opposition and competition. 6. Social conditions such as literary, economic conditions, and political climate allow for formation

Table 32. cont.

Theorist	Focus	Findings
Dowling and Pfeffer (1975)	Achieving organizational legitimacy through alignment of value systems with the external environment	<p>7. The organization can overcome obstacles to formation such as ensuring that all new roles can be carried out, operating costs are manageable, and the lack of internal and external relationships and connections are surmounted</p> <p>Organizations seeking legitimacy attempt to operate within the parameters of what is economically viable, legal, and legitimate (based on values and norms) Legitimacy therefore acts as a constraint to organizations but one that can change by society or by organizational attempts to alter what is legitimate. One major form of gaining legitimacy is consequently conformity, and the more visible (socially and politically connected) an organization is publicly, the greater the effort to conform.</p>
Meyer and Rowan (1977)	Gaining and maintaining legitimacy and the impact on organizational operations	<p>An organization does not succeed because of coordination and control but rather because of the organization's ability to adopt environmental myths. As organizations expand to embrace environmental myths, efficiency is often impaired and the organization engages in decoupling (e.g., mission and operations become segregated)</p>
Pfeffer and Salancik (1978/2003)	Explored the role of the external environment on organizations and how organizations survive in response to their environments	<p>Organizational survival occurs by <i>effectively</i> (an external measure) responding to external interest groups' demands and by acquiring and managing resources. Stakeholders assess an organization's effectiveness by what it is producing and the resources it consumes in the process. An organization typically</p>

Table 32. cont.

Theorist	Focus	Findings
Zucker (1983)	Explains how informal structures become formalized (i.e., institutions) and argues that all organizations are institutions	assesses its environmental context by the types of data and information it collects about it. Organizational design must take into account the needs of stakeholders, and organizational change occurs through environmental change.
Ashforth and Gibbs (1990)	Explores dynamics that undermine the pursuit of legitimacy by an organization	Institutionalization occurs through the ascribing of impersonal roles that can be assigned to more than one person, increasing exteriority. Once a collective group engages in one institutional function, legitimacy becomes contagious and spreads to other parts of the group's activity. Another outcome of institutionalization is the formation of ties with other entities, creating stability. This stability is constantly undermined by external entropy that forces institutions to sometimes change but also seek mechanisms for maintaining stability.
Meyer and Scott (1991)	Theory on what influences organizational structure, process, and decision making	To gain legitimacy, organizations engage in substantive and symbolic management practices. The degree to which these practices are pursued depends on whether the organization is attempting to extend, maintain, or defend its legitimacy, with the organization taking a proactive legitimacy promotion approach when constituent buy-in is low. Yet, overt attempts to seek legitimacy are highly suspect by stakeholders and consequently often ineffective.
		Organizations are connected in a vertical network with the nation-state increasingly at the top of the hierarchy and centralization becoming a predominate means of operations. Those organizations of an

Table 32. cont.

Theorist	Focus	Findings
Dimaggio and Powell (1991)	Explores the causes of organizational change	institutional (as opposed to technical) nature are more likely to have structures, processes, and decision making structures that take into account centralized authority (i.e., political actors in the nation state). Those with high mix of both institutional and technical demands have highly complex administrative structures. Organizations in weak institutional and technical sectors are unstable and less likely to survive.
Aldrich and Fiol (1994)	Explores the liability of newness and strategies for overcoming it	Due to state and other pressures such as professionalization organizations are becoming isomorphic but not necessarily more efficient. This occurs once an organization becomes well established and part of a field. The field and its key stakeholders then define what is legitimate, coercively, mimetically, and normatively. This theory has several hypothesis of predictors of isomorphism such as the greater the dependence of an organization on other organizations, the more it will become like those organizations upon which it depends.
		Legitimacy is both cognitive (taken for granted) and sociopolitical (reflects social and political norms). The theorist contend that coercion, effective issue framing, finding a common bond with stakeholders, use of narrative, the building of networks and standards among all those working in the new industry, receiving the approval of existing industry, minimizing the severity of attacks by industries that feel threatened, ensuring accurate representation in the media, and receiving government buy-in are all

Table 32. cont.

Theorist	Focus	Findings
Stryker (1994)	How does science impact a law's legitimacy?	<p>steps that can assist in gaining legitimacy. In other words, new industry must balance its "uniqueness" with finding a niche in current industry and social networks to build trust and support.</p> <p>Provides a definition of legitimacy: "Legitimacy is collective recognition of, and orientation to, institutionalized and binding rules of the game" (p. 858). Views of what is legitimate may conflict because of divergence at the individual, non-institutional, and institutional level. Legitimacy is built through mechanisms that are constitutive (adherence through attitudes such as loyalty), instrumental (behavioral consent), and normative (recognizing rules and acknowledging them as binding). Legitimacy declines when one sector (law) collides with another (science), but this collision ultimately allows for change and the emergence of new forms of stability.</p>
Scott (2014)	Summarizes and identifies gaps in legitimacy theory to date	<p>Legitimacy is not a commodity but a necessary condition of existence and is granted by whoever is perceived to hold social power. Acting within culturally acceptable parameters, receiving the approval of sanctioning/accrediting body, and having government support are essential for receiving and maintaining legitimacy, and these three pillars of legitimacy may, at times, conflict. The book also contends that decoupling is not a natural outcome of isomorphism.</p>

Appendix B
Industry Diversity and Concentration for 50 Most Populous Metro Areas

Table 33. Industry Diversity and Concentration for 50 Most Populous Metro Areas

Metro Area	Industry Diversity	Primary Industry Concentration Value	Primary Industry Concentration
Los Angeles-Long Beach-Santa Ana, CA	Unspecialized	1.20	Information, Finance, and Professional Services
New York-Northern New Jersey-Long Island, NY-NJ-PA	Unipolar	1.31	Information, Finance, and Professional Services
Chicago-Joliet-Naperville, IL-IN-WI	Unspecialized	1.20	Manufacturing
Dallas-Fort Worth-Arlington, TX	Unspecialized	1.23	Information, Finance, and Professional Services
Houston-Sugar Land-Baytown, TX	Bipolar	1.48	Agriculture, Mining, and Construction
Detroit-Warren-Livonia, MI	Unipolar	1.62	Manufacturing
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	Unspecialized	1.16	Information, Finance, and Professional Services
Minneapolis-St. Paul-Bloomington, MN-WI	Unipolar	1.27	Manufacturing
Atlanta-Sandy Springs-Marietta, GA	Unipolar	1.30	Wholesale Trade, Transportation, and Utilities
Boston-Cambridge-Quincy, MA-NH	Unipolar	1.30	Information, Finance, and Professional Services
Seattle-Tacoma-Bellevue, WA	Unspecialized	1.20	Information, Finance, and Professional Services
San Francisco-Oakland-Fremont, CA	Unipolar	1.46	Information, Finance, and Professional Services
San Jose-Sunnyvale-Santa Clara, CA	Bipolar	1.84	Manufacturing
Riverside-San Bernardino-Ontario, CA	Unipolar	1.29	Wholesale Trade, Transportation, and Utilities
Phoenix-Mesa-Glendale, AZ	Unspecialized	1.22	Information, Finance, and Professional Services
St. Louis, MO-IL	Unspecialized	1.07	Information, Finance, and Professional Services
Cincinnati-Middletown, OH-KY-IN	Unipolar	1.37	Manufacturing
Cleveland-Elyria-Mentor, OH	Unipolar	1.38	Manufacturing
Portland-Vancouver-Hillsboro, OR-WA	Unspecialized	1.22	Manufacturing
San Diego-Carlsbad-San Marcos, CA	Unspecialized	1.21	Information, Finance, and Professional Services
Miami-Fort Lauderdale-Pompano Beach, FL	Unspecialized	1.24	Wholesale Trade, Transportation, and Utilities
Milwaukee-Waukesha-West Allis, WI	Unipolar	1.55	Manufacturing
Pittsburgh, PA	Unspecialized	1.10	Wholesale Trade, Transportation, and Utilities
Indianapolis-Carmel, IN	Unspecialized	1.20	Manufacturing
Kansas City, MO-KS	Unspecialized	1.18	Information, Finance, and Professional Services
Washington-Arlington-Alexandria, DC-VA-MD-WV	Unipolar	1.53	Information, Finance, and Professional Services
Charlotte-Gastonia-Rock Hill, NC-SC	Unspecialized	1.25	Information, Finance, and Professional Services
Denver-Aurora-Broomfield, CO	Unipolar	1.38	Information, Finance, and Professional Services
Providence-New Bedford-Fall River, RI-MA	Unspecialized	1.10	Education, Healthcare, and Public Administration
Baltimore-Towson, MD	Unspecialized	1.24	Education, Healthcare, and Public Administration
Columbus, OH	Unspecialized	1.19	Information, Finance, and Professional Services
Austin-Round Rock-San Marcos, TX	Unspecialized	1.18	Information, Finance, and Professional Services
Louisville/Jefferson County, KY-IN	Unipolar	1.34	Wholesale Trade, Transportation, and Utilities
Tampa-St. Petersburg-Clearwater, FL	Unipolar	1.27	Information, Finance, and Professional Services
Nashville-Davidson—Murfreesboro—Franklin, TN	Unspecialized	1.06	Arts, Entertainment, and Other Services
Rochester, NY	Unipolar	1.33	Manufacturing
Hartford-West Hartford-East Hartford, CT	Unspecialized	1.21	Information, Finance, and Professional Services
Virginia Beach-Norfolk-Newport News, VA-NC	Unspecialized	1.12	Education, Healthcare, and Public Administration
San Juan-Caguas-Guaynabo, PR	Unspecialized	1.15	Education, Healthcare, and Public Administration
Grand Rapids-Wyoming, MI	Unipolar	1.78	Manufacturing
San Antonio-New Braunfels, TX	Unspecialized	1.10	Agriculture, Mining, and Construction
Wichita, KS	Unipolar	1.94	Manufacturing
Salt Lake City, UT	Unspecialized	1.17	Wholesale Trade, Transportation, and Utilities
Buffalo-Niagara Falls, NY	Unspecialized	1.16	Education, Healthcare, and Public Administration
Worcester, MA	Unipolar	1.39	Manufacturing
Allentown-Bethlehem-Easton, PA-NJ	Unipolar	1.39	Manufacturing
Tulsa, OK	Unspecialized	1.20	Manufacturing
Raleigh-Cary, NC	Unipolar	1.32	Information, Finance, and Professional Services
Sacramento—Arden-Arcade—Roseville, CA	Unspecialized	1.19	Education, Healthcare, and Public Administration
Akron, OH	Unipolar	1.56	Manufacturing

Note. From The education premium for employment: Is it the same everywhere? by C. Layne, 2013, Suitland, MD: U.S. Census Bureau, p. 17.

Appendix C
Metropolitan Areas Surveyed

1. Akron, Ohio
2. Albuquerque, New Mexico
3. Allentown, Pennsylvania
4. Anchorage, Alaska
5. Atlanta, Georgia
6. Bakersfield, California
7. Baltimore, Maryland
8. Baton Rouge, Louisiana
9. Boise, Idaho
10. Boston, Massachusetts
11. Buffalo, New York
12. Charlotte, North Carolina
13. Chicago, Illinois
14. Cincinnati, Ohio
15. Cleveland, Ohio
16. Colorado Springs, Colorado
17. Columbus, Ohio
18. Corpus Christi, Texas
19. Dallas, Texas
20. Denver, Colorado
21. Detroit, Michigan
22. El Paso, Texas
23. Fort Wayne, Indiana
24. Fort Worth, Texas
25. Grand Rapids, Michigan
26. Greensboro, North Carolina
27. Hartford, Connecticut
28. Honolulu, Hawaii
29. Houston, Texas
30. Indianapolis, Indiana
31. Jacksonville, Florida
32. Jersey City, New Jersey
33. Kansas City, Missouri
34. Laredo, Texas
35. Las Vegas, Nevada
36. Lexington-Fayette, Kentucky
37. Lincoln, Nebraska
38. Los Angeles, CA
39. Louisville, Kentucky
40. Madison, Wisconsin
41. Memphis, Tennessee
42. Miami, Florida
43. Milwaukee, Wisconsin
44. Minneapolis, Minnesota
45. Nashville, Tennessee
46. New York, New York
47. Oklahoma City, Oklahoma
48. Orlando, Florida
49. Philadelphia, Pennsylvania
50. Phoenix, Arizona
51. Pittsburgh, Pennsylvania
52. Portland, Oregon
53. Providence, Rhode Island
54. Raleigh, North Carolina
55. Reno, Nevada
56. Richmond, Virginia
57. Riverside, California
58. Rochester, New York
59. Sacramento, California
60. Salt Lake, Utah
61. San Antonio, Texas
62. San Diego, California
63. San Francisco, California
64. San Jose, California
65. Seattle, Washington
66. St. Louis, Missouri
67. St. Petersburg, Florida
68. Stockton, California
69. Tampa, Florida
70. Tucson, Arizona
71. Tulsa, Oklahoma
72. Virginia Beach, Virginia
73. Wichita, Kansas
74. Worcester, Massachusetts

Appendix D
Survey Screenshots

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To measure your opinions of massive open online courses (MOOCs), you will be asked to provide basic demographic information, rate the influence of certain MOOC characteristics on your opinion of their acceptability, and then complete a brief mock job applicant screening exercise using short applicant qualification summaries. These qualification summaries may include completion of MOOCs.

This survey will take approximately 10 minutes to complete. You may choose to exit the survey at anytime. Your answers will remain confidential. Results will be used for purposes of a doctoral dissertation. Please contact Alyssa Martin at alyssa.martin@my.und.edu with any questions. Your participation is greatly appreciated.

0% 100%

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Massive open online courses (MOOCs) are free courses available to anyone with Internet access and are offered by major colleges and universities worldwide. Several thousand students typically enroll in these courses, and those who complete them usually receive a certificate of completion but typically do not receive college credit for completion.

Have you heard of MOOCs prior to today?

Yes

No

0% 100%

This study is meant to gather information from individuals working in certain metropolitan areas, which are grouped by geographic region below.

Please indicate in which geographic region you work.

- Midwest (Chicago, Columbus, Indianapolis, Kansas City, St. Louis)
- Northeast (Baltimore, Buffalo, Hartford, Philadelphia, Pittsburgh, Providence)
- South (Charlotte, Miami, Nashville, San Antonio, Tulsa, Virginia Beach)
- West (Los Angeles, Phoenix, Portland, Sacramento, Salt Lake, San Diego, Seattle)



0%  100%

Please answer the following demographic questions.

Sex:

- Male
- Female

What is your age range?

- 33 or under
- 34-49
- 50-68
- 68+

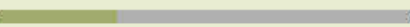
Education level:

- High school diploma
- Some college
- Associate's degree
- Bachelor's degree
- Master's degree or higher

Please select all the formats in which you have taken college courses.

- On a college campus
- Online
- Blend courses (combination of face-to-face and online)
- Other
- N/a



0%  100%

Industry in which employed:

- Manufacturing
- Agriculture, forestry, fishing/hunting, mining, or construction
- Transportation, utilities, warehousing, or wholesale trade
- Information, finance, real estate, science, professional/administrative, or waste management
- Public administration, education, social services, or health care
- Retail trade, food services, arts, entertainment, recreation, and other services

In what position are you currently employed?

- Human resources manager/director
- Human resources staff
- Hiring manager
- Other

How many years have you been directly involved in the hiring process?



0%  100%

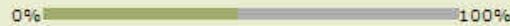
Please rate the acceptability of MOOCs as a provider of post-secondary education based on the following characteristics.

	Unacceptable form of education (1)	Slightly unacceptable form of education (2)	Slightly acceptable form of education (3)	Acceptable form of education (4)	Prefer not to answer
MOOCs promote equality by providing educational access to anyone with Internet access	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
MOOCs promote personal growth by offering courses on a wide range of topics	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
MOOCs promote global diversity by allowing students from around the world to interact in virtual classrooms	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>



Please rate the acceptability of MOOCs as a provider of post-secondary education based on the following characteristics.

	Unacceptable form of education (1)	Slightly unacceptable form of education (2)	Slightly acceptable form of education (3)	Acceptable form of education (4)	Prefer not to answer (0)
MOOCs allow access to college course content at no to low cost.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
MOOCs have courses devoted to the latest developments in science, technology, and other industries	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
MOOCs may allow for a more educated workforce worldwide	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>



Please rate the acceptability of MOOCs as a provider of post-secondary education based on the following characteristics.

	Unacceptable form of education (1)	Slightly unacceptable form of education (2)	Slightly acceptable form of education (3)	Acceptable form of education (4)	Prefer not to answer (0)
MOOCs are offered by colleges and universities such as Harvard, MIT, and Yale	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Unacceptable form of education (1)	Slightly unacceptable form of education (2)	Slightly acceptable form of education (3)	Acceptable form of education (4)	Prefer not to answer (0)
MOOCs are partners with corporations such as Google, Linux, Bank of America, and the Smithsonian.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Unacceptable form of education (1)	Slightly unacceptable form of education (2)	Slightly acceptable form of education (3)	Acceptable form of education (4)	Prefer not to answer (0)
Many MOOC instructors are famous such as Nobel Prize winner, Robert Shiller; Google Glass inventor, Sebastian Thrun; and Chicago Tribune journalist, Owen Youngman.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>



Example of Choice-Based Conjoint Analysis Choice Set (six randomized sets per survey)

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Assume that you are screening candidates to fill a position for which a bachelor's degree and three years of on-the-job experience is preferred (assume the position does not require special licensure or an accredited degree). Choose the candidate who is most qualified to advance in your hiring process by choosing one of the buttons below:

(1 of 6)

Candidate 1	Candidate 2	Candidate 3	Candidate 4	
Formal education completed: high school diploma only	Formal education completed: associate's degree	Formal education completed: associate's degree	Formal education completed: bachelor's degree	NONE: I wouldn't choose any of these.
Completed equivalent of bachelor's degree in MOOCs	Completed the equivalent of associate's degree in MOOCs	Completed the equivalent of associate's degree in MOOCs	Completed the equivalent of associate's degree in MOOCs	
Experience: equivalent to preferred (= 3 years)	Experience: more than preferred (>3 years)	Experience: none	Experience: less than preferred (<3 years)	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

← →

0% 100%

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Please click the arrow button below if you would like to be included in a drawing for a \$50 Amazon giftcard. If you do not wish to enter the drawing, simply close your browser.

If you have any questions concerning the study, please contact Alyssa Martin at alyssa.martin@my.und.edu. Thank you, again, for your time!

← →

0% 100%

Appendix E
IRB Request

University of North Dakota Exempt Certification Form
Research Involving the Use of Survey, Interview, Observational Procedures or Educational Tests

Complete this form if you are requesting permission to use survey, interview, or observational procedures, or educational tests.

All research with human participants conducted by faculty, staff, and students associated with the University of North Dakota, must be reviewed and approved as prescribed by the University's policies and procedures governing the use of human subjects. No activities are to be initiated without prior review and approval by the Institutional Review Board.

Please answer the following questions regarding your research. Handwritten forms are not accepted – responses must be typed.

1. Are prisoners included in the research? Yes No

If you answered "Yes" to the above question, this research does not qualify as exempt. Please fill out and submit a "Human Subjects Review Form". If you answered "No", continue to question 2a.

2a. Are children included in the research? Yes No

If you answered "No" to the above question, please skip question 2b and continue to question 3. If you answered "Yes", continue to question 2b.

2b. Does the research include survey or interview procedures? Does the research involve the observation of public behavior with researcher interaction with the subjects? Yes No

If you answered "Yes" to questions 2a and 2b, this research does not qualify as exempt. Please fill out and submit a "Human Subjects Review Form". If you answered "No", continue to question 3.

3a. Will the data be documented in such a manner that subjects cannot be identified, either directly or through identifiers linked to the subjects (subject name, social security number, birth date, coding, etc.)? Yes No

If you answered "Yes" to the above question, please skip question 3b and continue with the rest of the form. If you answered "No", continue to question 3b.

3b. Will the disclosure of the subjects' responses outside of the research reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation? Yes No

If you answered "Yes" to the above question, this research does not qualify as exempt. Please fill out and submit a "Human Subjects Review Form".

4. Will the research involve the use of audio, video, digital or image recordings of subjects? Yes No

If you answered "Yes" to the above question, this research does not qualify as exempt. Please fill out and submit a "Human Subjects Review Form". If you answered "No", provide the information requested below:

Principal Investigator: Alyssa Martin

Telephone: 701-373-5656 E-mail Address: alyssa.martin@my.und.edu

Complete Mailing Address: 123 Sioux Ave, Bismarck, ND 58501

School/College: University of North Dakota Department: Educational Leadership

Student Adviser (if applicable): Jeffrey Sun

Telephone: 701-777-3452 E-mail Address: jeffrey.sun@und.edu

Address or Box #: 231 Centennial Drive, MS: 7189, Grand Forks, ND 58202

School/College: Education Department: Educational Leadership

Project Title: Is MOOC Madness Here to Stay? An Institutional Legitimacy Study

Proposed Project Dates: Beginning Date: July 2014 Completion Date: May 2015

Funding agencies supporting this research: n/a

(A copy of the funding proposal for each agency identified above MUST be attached to this proposal when submitted.)

YES or NO Does any researcher associated with this project have a financial interest in the results of this project? If yes, submit on a separate piece of paper an additional explanation of the financial interest. The Principal Investigator and any researcher associated with this project should have a Financial Interests Disclosure Document on file with their department.

YES or NO Will any research participants be obtained from another organization outside the University of North Dakota (e.g., hospitals, schools, public agencies, American Indian tribes/reservations)?

YES or NO Will any data be collected at or obtained from another organization outside the University of North Dakota? Participants will be recruited using social media and possibly participant recruitment websites (See explanation page 6). An approval letter is not required to recruit participants using these mediums.
If yes to either of the previous two questions, list all institutions: _____

Letters from each organization must accompany this proposal. Each letter must illustrate that the organization understands its involvement and agrees to participate in the study. Letters must include the name and title of the individual signing the letter and should be printed on organizational letterhead.

Does any external site where the research will be conducted have its own IRB? _____ YES or **X** NO

If yes, does the external site plan to rely on UND's IRB for approval of this study? _____ YES or _____ NO
(If yes, contact the UND IRB at 701 777-4279 for additional requirements)

If your project has been or will be submitted to other IRBs, list those Boards below, along with the status of each proposal.

_____ Date submitted: _____ Status: ___ Approved ___ Pending
_____ Date submitted: _____ Status: ___ Approved ___ Pending

(include the name and address of the IRB, a contact person at the IRB, and a phone number for that person)

Type of Project: Check "Yes" or "No" for each of the following.

YES or NO New Project YES or NO Dissertation/Thesis/Independent Study
 YES or NO Continuation/Renewal YES or NO Student Research Project
Is this a Protocol Change for previously approved project? If yes, submit a signed Protocol Change Form, along with a signed copy of this form with the changes bolded or highlighted.
 YES or NO

Please provide additional information regarding your research by responding to questions 5-11 on a separate sheet of paper.

5. In non-technical language, describe the purpose of the study and state the rationale for this research.

6. In non-technical language, describe the study procedures.

How will subjects be informed of the research? If you will be having subjects sign a consent form, justify why. How will instrument(s) be distributed/collected? Will compensation be provided? What is the suspected duration of subject participation? Etc.

7. Where will the research be conducted?

8. Describe what data will be recorded.

9. How will data be recorded and stored (that is will it be coded, anonymous, etc.)?

Note: Must state that data will be stored for a minimum of three years after data analysis is complete, or for a period of time sufficient to meet federal, state, and local regulations, sponsor requirements, and organizational policies and procedures.

10. Describe procedures you will implement to protect confidentiality and privacy of participants.

11. Describe the nature of the subject population and the estimated number of subjects.

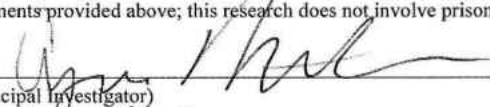
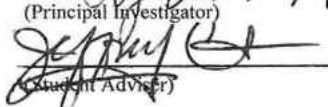
If participants who are likely to be vulnerable to coercion and undue influence are to be included in the research, define provisions to protect the privacy and interests of these participants and additional safeguards implemented to protect the rights and welfare of these participants.

Necessary attachments:

- Signed Student Consent to Release of Educational Record Form (students only);
- Investigator Letter of Assurance of Compliance;
- Surveys, interview questions, or educational tests;
- Printed web screens (if survey is over the Internet); and
- Advertisements.

NOTE: The UND IRB requires that all key personnel involved in the research complete human subject education before IRB approval to conduct research can be granted.

By signing this form, I certify that the above information is accurate and that this research will be conducted in accordance with the statements provided above; this research does not involve prisoners, but if a subject becomes a prisoner, I will notify the IRB.

 (Principal Investigator)	07/14/14 Date:
 (Student Adviser)	07/14/14 Date:

****All students and medical residents must list a faculty member as a student adviser on the first page of the application and must have that person sign the application.****

Submit the signed application form and any necessary attachments to the Institutional Review Board, 264 Centennial Drive Stop 7134, Grand Forks, ND 58202-7134; or bring it to Twamley Hall, Room 106.

**INVESTIGATOR LETTER OF ASSURANCE OF COMPLIANCE
WITH ALL APPLICABLE FEDERAL REGULATIONS FOR THE
PROTECTION OF THE RIGHTS OF HUMAN SUBJECTS**

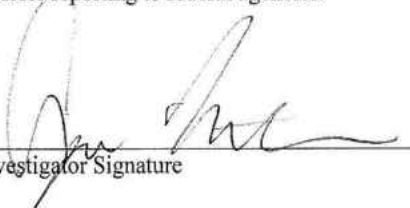
I Alyssa Martin
(Name of Investigator)

agree that, in conducting research under the approval of the University of North Dakota Institutional Review Board, I will fully comply and assume responsibility for the enforcement of compliance with all applicable federal regulations and University policies for the protection of the rights of human subjects engaged in research. Specific regulations include the Federal Common Rule for Protection of the Rights of Human Subjects 45 CFR 46. I will also assure compliance to the ethical principles set forth in the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research document, The Belmont Report.

I understand the University's policies concerning research involving human subjects and agree to the following:

1. Should I wish to make changes in the approved protocol for this project, I will submit them for review PRIOR to initiating the changes. (A proposal may be changed without prior IRB approval where necessary to eliminate apparent immediate hazards to the subjects or others. However, the IRB must be notified in writing within 72 hours of any change, and IRB review is required at the next regularly scheduled meeting of the full IRB.)
2. If any problems involving human subjects occur, I will immediately notify the Chair of the IRB, or the IRB Coordinator.
3. I will cooperate with the UND IRB by submitting Research Project Review and Progress Reports in a timely manner.

I understand the failure to do so may result in the suspension or termination of proposed research and possible reporting to federal agencies.


Investigator Signature

7/14/14
Date

STUDENT RESEARCHERS: As of June 4, 1997 (based on the recommendation of UND Legal Counsel) the University of North Dakota IRB is unable to approve your project unless the following "Student Consent to Release of Educational Record" is signed and included with your "Human Subjects Review Form."

STUDENT CONSENT TO RELEASE OF EDUCATIONAL RECORD¹

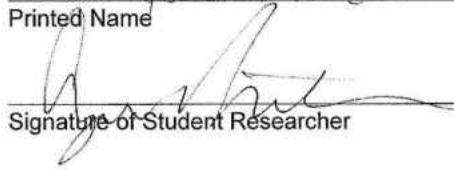
Pursuant to the Family Educational Rights and Privacy Act of 1974, I hereby consent to the Institutional Review Board's access to those portions of my educational record which involve research that I wish to conduct under the Board's auspices. I understand that the Board may need to review my study data based on a question from a participant or under a random audit. The study to which this release pertains is _____
Is MOOC Madness Here to Stay? An Institutional Legitimacy Study

I understand that such information concerning my educational record will not be released except on the condition that the Institutional Review Board will not permit any other party to have access to such information without my written consent. I also understand that this policy will be explained to those persons requesting any educational information and that this release will be kept with the study documentation.

0275971
ID #

07/14/14
Date

Alyssa Martin
Printed Name


Signature of Student Researcher

¹Consent required by 20 U.S.C. 1232g.

5. **In non-technical language, describe the purpose of the study and the rationale for this research.** This quantitative study will measure if human resource personnel and hiring managers view credentials obtained through Massive Open Online Courses (MOOCs) as viable alternatives to traditional post-secondary education. Using portions of Suchman's (1995)¹ taxonomy on legitimacy theory as a conceptual framework, the study will measure MOOC legitimacy among participants in a twofold manner. First, participants will be asked to complete a traditional survey rating their acceptance level of MOOC characteristics on a Likert-like scale. Second, the survey will ask participants to indicate their acceptance of MOOC credentials in relation to traditional job qualifications through choice-based conjoint analysis—a survey method that presents participants with several “product” choices and asks them to select one per choice set. During this portion of the survey, participants will review several mock pools of job applicants, each applicant with a different set of qualifications (including some with MOOC credentials), and be asked to select the most qualified applicant per choice-set based on mock vacancy announcements.

6. **In non-technical language, describe the study procedures.**

I will study human resource personnel and hiring managers in 26 U.S. metropolitan areas, which are grouped as follows: Midwest: Indiana, Illinois, Missouri, Ohio; Northeast: Connecticut, Maryland, New York, Pennsylvania, Rhode Island; South: Florida, North Carolina, Oklahoma, Tennessee, Texas, Virginia; and West: Arizona, California, Washington, Oregon, Utah.

Participants will be recruited using LinkedIn and Facebook ads targeting human resource personnel and hiring managers in the metropolitan areas listed above. The ads will contain a brief survey invitation, link to the survey, and information regarding the study's gift card drawing (which participants may register for upon completion of the survey). Upon clicking on a link, participants will be taken to a survey screen explaining the study, identifying the researcher, explaining the safety and confidentiality protocols that I will take when conducting the study, explaining that the study will not collect personal identifying information from participants, inform the participant that s/he may opt-out of the study at any time, and indicate that the survey will take approximately 10-minutes to complete.

At the end of the survey, participants may choose to click a link that will open a Survey Monkey form and will allow participants to enter a drawing for one of four \$50 Amazon.com gift card. Information collected for the drawing will include the individual's name and email address. This information will only be used for purposes of the drawing. It, in no way, will be linked to the survey information collected for my study and a message to this effect will be included on the drawing registration form.

This social media campaign will run until the minimum target sample size of 300 fully completed surveys has been reached.

7. **Where will the research be conducted?**

The survey will be administered online using survey software with conjoint analysis capabilities. Participants will complete the survey in a location with Internet access that is convenient for them.

8. **Describe what data will be recorded.**

Only non-identifying data will be recorded for purposes of the study. These data include the following demographic information: sex, age range, education level, form of educational attainment (online, on campus, mix of online and on campus), metropolitan area where employed, years in

¹ Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of management review*, 20(3), 571-610. doi: 10.5465/AMR.1995.9508080331

position, position classification (human resources staff, human resources management, hiring manager or other), and industry category of company for which employed (six options will be given based on U.S. Census industry classifications). Additional recorded data will be the answers to questions concerning participant acceptance of MOOC characteristics and mock applicant selections made during the conjoint analysis portion of the survey.

9. How will data be recorded and stored (that is, will it be coded, anonymous, etc.)?

Research data will be recorded through an online survey system, which will be hosted on a SSL (Secure Sockets Layer) server. Participants will not provide identifying information during this study. Research data will be downloaded to a password protected computer and backed up on an external hard drive. Both pieces of equipment shall be kept in the principle investigator's locked home office. Only the principal investigator, her advisor, and dissertation committee members will have access to the data. All data will be retained for three years, after which time they will be properly destroyed, and the principle investigator shall ensure no traces remain.

10. Describe procedures you will implement to protect confidentiality and privacy of participants.

The online survey will be hosted on a SSL (Secure Sockets Layer) server with 256-bit encryption, protecting the confidentiality of participant responses. Participants will not provide identifying information during this study and will be assured in through survey screens that only the principle researcher and her dissertation committee will have access to individual survey responses. All data will be aggregated when presented in the dissertation.

11. Describe the nature of the subject population and the estimated number of subjects.

The population for this study is U.S. human resource personnel and hiring managers from 26 metropolitan areas (see complete list of metropolitan areas under question 6). I selected this group of participants because human resource personnel and hiring managers often serve as a critical gatekeeper in the hiring process; therefore, their view of MOOC credentials is core to understanding if MOOCs are a viable alternatives to traditional post-secondary education. The survey will contain a short description of MOOCs to acclimate participants who are unfamiliar with these free online courses. There is minimal risk to participate in the study.

LINKEDIN Post (will appear on HR group forum pages)

Would you pick a MOOC?

Massive Open Online Courses (MOOCs) are a new and free form of online, post-secondary learning. Some experts believe that these courses could eventually replace traditional degrees in certain industries.

I am a doctoral student conducting a study involving human resource personnel and hiring managers to determine their perceptions of MOOCs, especially when selecting employees. I am seeking human resource personnel and hiring managers to complete a 10-minute online survey. The survey will ask for demographic information, ask you to rate your opinion of certain MOOC characteristics, and will ask you select the most qualified prospective employee in six pools of mock applicants, some of whom have taken MOOCs. To thank you for your time, at the end of the survey, you may register for a drawing for a \$50 Amazon.com gift card (four will be awarded).

No identifying information will be collected from participants, and my research protocols have been approved by the University of North Dakota Office of Institutional Research.

I will share the findings of my research on this forum page once it is complete.

To take the survey, please click on the following link: <https://mooctestudy.info/cgi-bin/ciwweb.pl?studynname=MOOCLickert>

Thank you, in advance, for your valuable time!

Alyssa Martin
Doctoral student, Educational Leadership Department
University of North Dakota
alyssa.martin@my.und.edu
701-373-5656

Facebook Ad

The image shows a Facebook advertisement for a survey. At the top left is the 'MOOC Study' logo with a 'Just now' timestamp. The main text reads: 'Win a \$50 Amazon Gift Card by completing a short survey for dissertation research!'. Below this is a photograph of a man in a blue checkered shirt sitting at a desk with a laptop, smiling. The UND North Dakota logo is overlaid on the bottom left of the photo. Below the photo, the text asks 'Would You Pick A MOOC?' and provides a brief description of MOOCs and the survey's purpose. At the bottom left is the URL 'MOOCSTUDY.INFO' and at the bottom right is a 'Learn More' button.

PROTOCOL CHANGE FORM
UNIVERSITY OF NORTH DAKOTA INSTITUTIONAL REVIEW BOARD

Please complete this form and attach revised research documents for any proposed change to your protocol, consent forms, or any supportive materials (such as advertisements, questionnaires, surveys, etc.). All changes must be highlighted. Any proposed change in protocol affecting human participants must be reviewed and approved by the IRB prior to implementation, except where an immediate change is necessary to eliminate a hazard to the participant.

Principal Investigator: Alyssa Martin

Telephone: 701-373-5656

E-mail Address: Alyssa.martin@my.und.edu

Complete Mailing Address: 23 Sioux Ave

School/College: Education

Department: Educational Leadership

Project Title: Is MOOC Madness Here to Stay? An Institutional Legitimacy Study

Proposal Number: IRB-201407-031

Approval Date: July 28, 2014

THE CURRENT STATUS OF THE PROJECT IS (Check one)

Project currently in progress. Number of subjects enrolled is: 1

Project not yet started. No subjects enrolled.

Project closed to subject entry.

1. Briefly describe and explain the reason for the revision or amendment and the justification for the change. Include a copy of affected protocol pages and consent form with specific changes highlighted.

Due to a lack of response using the current social media recruiting efforts, I would like to expand my recruiting efforts by sending out personal emails to Society of Human Resource Management (SHRM) board members in the 26 metropolitan areas where I am conducting my study. The email will invite these individuals to complete the survey and to forward the email to other human resource professionals for survey completion. Protocol changes are included on page four-six of this document.

Yes No

2. Does the change affect the study or subject participation (procedures, risks, costs, etc.)?

Please explain: In addition to the social media recruiting methods that were used for recruiting purposes, personalized email messages will now be sent to SHRM board members in the twenty-six metropolitan areas where I am collecting data. The email will invite these individuals to complete the survey and to forward the email to other human resource professionals for survey completion. The messages will be sent once with a reminder sent after two weeks. The first message will read as follows and the reminder message is included on page three.

Dear [Name of human resources director/manager]:

I am a doctoral student at the University of North Dakota, and I am interested in perceptions about Massive Open Online Courses (MOOCs) among human resource personnel. MOOCs are a new form of online education. They are free courses available to anyone with Internet access and are offered by major colleges and universities worldwide. Several thousand students enroll in these courses, and those who complete them usually receive a certificate of completion but typically do not receive college credit for completion.

I received your contact information from your SHRM Chapter website. I would like to know if you would be willing to participate in a research study related to MOOCs. You are under no obligation to participate, and you can withdraw from the study at any time. If you choose to participate, please click on the survey link below. It will take you approximately 10 minutes to complete. The survey has been approved by the UND Institutional Review Board and is administered over a secure server. The survey will not collect information that would identify you or your company. Your survey results will be combined with responses received from other participants and used only for the purpose of my doctoral research. At the end of the survey, you may choose to register for one of four \$50 Amazon.com gift cards, which will be given away at the end of the study recruitment period. The information collected for the drawing is used only for purposes of awarding prizes and will

Revised 5/1/06

not be combined with your survey data.

Survey link: <https://moocstudy.info/cgi-bin/ciwweb.pl?studyname=MOOCLickert>

If you would also be willing to forward this survey invitation to other human resource professionals in your area, I would greatly appreciate your help. I'm hoping to collect data from 300 human resource professionals in total. If you have any questions, you may contact me at 701-373-5656 or at alyssa.martin@my.und.edu. Thank you very much for your valuable time.

Sincerely,
Alyssa Martin

3. Does the change affect the consent document? _____ Yes No

If yes, include the revised consent form(s) with the changes highlighted, and a clean copy of the revised consent form(s).

By signing below, you are verifying that the information provided in the Human Subjects Review Form and attached information is accurate and that the project will be completed as indicated.

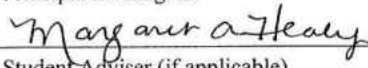
Signatures:



09/17/14

Principal Investigator

Date:



17 Sept 2014

Student Adviser (if applicable)

Date:

Email reminder:

Dear [Name of human resources director/manager]:

A few weeks ago, I invited you to participate in my survey on your perceptions of Massive Open Online Courses (MOOCs). If you completed the study, thank you for your time. If you have not had an opportunity to complete the survey, I would greatly appreciate your assistance with my research. I would also be very grateful for your help forwarding this survey invitation to other human resource professionals in your area. I'm hoping to collect data from 300 human resource professionals in total.

If you would be willing to participate in the survey, please click on the survey link below. It will take you approximately 10 minutes to complete. The survey has been approved by the UND Institutional Review Board and is administered over a secure server. The survey will not collect information that would identify you or your company. Your survey results will be combined with responses received from other participants and used only for the purpose of my doctoral research. You are under no obligation to participate, and you can withdraw from the study at any time.

At the end of the survey, you may choose to register for one of four \$50 Amazon.com gift cards, which will be given away at the end of the study recruitment period. The information collected for the drawing is used only for purposes of awarding prizes and will not be combined with your survey data.

Survey link: <https://moocstudy.info/cgi-bin/ciwwweb.pl?studyname=MOOCLickert>

If you have any questions, you may contact me at 701-373-5656 or at alyssa.martin@my.und.edu. Again, thank you very much for your valuable time.

Sincerely,
Alyssa Martin

5. **In non-technical language, describe the purpose of the study and the rationale for this research.**

This quantitative study will measure if human resource personnel and hiring managers view credentials obtained through Massive Open Online Courses (MOOCs) as viable alternatives to traditional post-secondary education. Using portions of Suchman's (1995)¹ taxonomy on legitimacy theory as a conceptual framework, the study will measure MOOC legitimacy among participants in a twofold manner. First, participants will be asked to complete a traditional survey rating their acceptance level of MOOC characteristics on a Likert-like scale. Second, the survey will ask participants to indicate their acceptance of MOOC credentials in relation to traditional job qualifications through choice-based conjoint analysis—a survey method that presents participants with several “product” choices and asks them to select one per choice set. During this portion of the survey, participants will review several mock pools of job applicants, each applicant with a different set of qualifications (including some with MOOC credentials), and be asked to select the most qualified applicant per choice-set based on mock vacancy announcements.

6. **In non-technical language, describe the study procedures.**

I will study human resource personnel and hiring managers in 26 U.S. metropolitan areas, which are grouped as follows: Midwest: Indiana, Illinois, Missouri, Ohio; Northeast: Connecticut, Maryland, New York, Pennsylvania, Rhode Island; South: Florida, North Carolina, Oklahoma, Tennessee, Texas, Virginia; and West: Arizona, California, Washington, Oregon, Utah.

Midwest

Chicago

Columbus

Indianapolis

Kansas City

St. Louis

Northeast

Baltimore

Buffalo

Hartford

Philadelphia

Pittsburgh

Providence—Only a state chapter

South

Charlotte

Miami

Nashville

San Antonio

Tulsa

Virginia Beach

West

Los Angeles

Phoenix

Portland

Sacramento

Salt Lake

San Diego

¹ Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of management review*, 20(3), 571-610. doi: 10.5465/AMR.1995.9508080331

Seattle

Participants will be recruited using social media and email. The process for each is described in more detail below:

- Social media: LinkedIn and Facebook ads targeting human resource personnel and hiring managers in the metropolitan areas listed above will be used for recruitment purposes. The ads will contain a brief survey invitation, link to the survey, and information regarding the study's gift card drawing (which participants may register for upon completion of the survey). Upon clicking on a link, participants will be taken to a survey screen explaining the study, identifying the researcher, explaining the safety and confidentiality protocols that I will take when conducting the study, explaining that the study will not collect personal identifying information from participants, inform the participant that s/he may opt-out of the study at any time, and indicate that the survey will take approximately 10-minutes to complete. This social media Facebook and LinkedIn campaign ran for three weeks from the date of initial IRB approval, will run until the minimum target sample size of 300 fully completed surveys has been reached.
- Email: A personalized will be sent to board of directors members of the Society for Human Resource Management (SHRM) chapters in the 26 metropolitan areas listed above. These email addresses were obtained from the SHRM chapter websites, and the email will explain this. The email will also identify the researcher, explain the safety and confidentiality protocols that I will take when conducting the study, and explain that the study will not collect personal identifying information from participants. The email will invite the recipient to participate in the study by clicking on a link and request that they forward the email to other human resource professionals in their area for purposes of participation. The email will also explain that participants are eligible to participant in a drawing for a one of four \$50 Amazon.com gift cards as described below. The email will be followed by a reminder email two weeks after the initial email is sent. Copies of the email invitations are included on pages one through three of this document.

At the end of the survey, participants may choose to click a link that will open a Survey Monkey form and will allow participants to enter a drawing for one of four \$50 Amazon.com gift card. Information collected for the drawing will include the individual's name and email address. This information will only be used for purposes of the drawing. It, in no way, will be linked to the survey information collected for my study and a message to this effect will be included on the drawing registration form.

7. Where will the research be conducted?

The survey will be administered online using survey software with conjoint analysis capabilities. Participants will complete the survey in a location with Internet access that is convenient for them.

8. Describe what data will be recorded.

Only non-identifying data will be recorded for purposes of the study. These data include the following demographic information: sex, age range, education level, form of educational attainment (online, on campus, mix of online and on campus), metropolitan area where employed, years in position, position classification (human resources staff, human resources management, hiring manager or other), and industry category of company for which employed (six options will be given based on U.S. Census industry classifications). Additional recorded data will be the answers to questions concerning participant acceptance of MOOC characteristics and mock applicant selections made during the conjoint analysis portion of the survey.

Revised 5/1/06

9. How will data be recorded and stored (that is, will it be coded, anonymous, etc.)?

Research data will be recorded through an online survey system, which will be hosted on a SSL (Secure Sockets Layer) server. Participants will not provide identifying information during this study. Research data will be downloaded to a password protected computer and backed up on an external hard drive. Both pieces of equipment shall be kept in the principle investigator's locked home office. Only the principal investigator, her advisor, and dissertation committee members will have access to the data. All data will be retained for three years, after which time they will be properly destroyed, and the principle investigator shall ensure no traces remain.

10. Describe procedures you will implement to protect confidentiality and privacy of participants.

The online survey will be hosted on a SSL (Secure Sockets Layer) server with 256-bit encryption, protecting the confidentiality of participant responses. Participants will not provide identifying information during this study and will be assured in through survey screens that only the principle researcher and her dissertation committee will have access to individual survey responses. All data will be aggregated when presented in the dissertation. The survey software has a feature that downloads cookies to the participant's computer preventing them from taking the survey more than once. This feature has been enabled to ensure that participants do not take the survey multiple times.

11. Describe the nature of the subject population and the estimated number of subjects.

The population for this study is U.S. human resource personnel and hiring managers from 26 metropolitan areas (see complete list of metropolitan areas under question 6). I selected this group of participants because human resource personnel and hiring managers often serve as a critical gatekeeper in the hiring process; therefore, their view of MOOC credentials is core to understanding if MOOCs are a viable alternatives to traditional post-secondary education. The survey will contain a short description of MOOCs to acclimate participants who are unfamiliar with these free online courses. There is minimal risk to participate in the study.

PROTOCOL CHANGE FORM
UNIVERSITY OF NORTH DAKOTA INSTITUTIONAL REVIEW BOARD

Please complete this form and attach revised research documents for any proposed change to your protocol, consent forms, or any supportive materials (such as advertisements, questionnaires, surveys, etc.). All changes must be highlighted. Any proposed change in protocol affecting human participants must be reviewed and approved by the IRB prior to implementation, except where an immediate change is necessary to eliminate a hazard to the participant.

Principal Investigator: Alyssa Martin

Telephone: 701-373-5656

E-mail Address: Alyssa.martin@my.und.edu

Complete Mailing Address: .23 Sioux Ave

School/College: Education

Department: Educational Leadership

Project Title: Is MOOC Madness Here to Stay? An Institutional Legitimacy Study

Proposal Number: IRB-201407-031

Approval Date: July 28, 2014

THE CURRENT STATUS OF THE PROJECT IS (Check one)

Project currently in progress. Number of subjects enrolled is: 27

Project not yet started. No subjects enrolled.

Project closed to subject entry.

1. Briefly describe and explain the reason for the revision or amendment and the justification for the change. Include a copy of affected protocol pages and consent form with specific changes highlighted.

Due to a lack of response using the current social media recruiting efforts, I would like to expand my recruiting efforts by sending out personal emails to Society of Human Resource Management (SHRM) board members in the 26 metropolitan areas where I am conducting my study. The email will invite these individuals to complete the survey and to forward the email to other human resource professionals for survey completion. Protocol changes are included on page four-six of this document.

2. Does the change affect the study or subject participation (procedures, risks, costs, etc.)? Yes No

Please explain:

In addition to the social media recruiting and email invitation methods that were used for recruiting purposes, personalized email messages will now be sent to SHRM board members throughout the U.S. (previously, emails were only sent to SHRM board members in 26 metropolitan areas). The content of the email invitations are the same as previously approved by IRB, and as previously approved, one initial invitation and one reminder email will be sent to each email address used.

In addition, a link to the survey will be posted on the HR Hero employer forum page. The email granting me permission to post on this page is attached, and the Facebook post will read as follows.

I am a graduate student from the University of North Dakota conducting a survey on HR managers' and HR personnel's perceptions of Massive Open Online Courses (MOOCs). After completing the ten-minute survey, you may register for one of four \$50 Amazon.com gift cards to be give away after I reach my target response rate. To take my survey and learn more about the participant rights and protections, please click below:

Survey link: <https://moocestudy.info/cgi-bin/ciwweb.pl?studyname=MOOCLickert>

Contact information: Alyssa Martin, University of North Dakota Educational Leadership Department, email: alyssa.martin@my.und.edu

3. Does the change affect the consent document? Yes No

If yes, include the revised consent form(s) with the changes highlighted, and a clean copy of the revised consent form(s).

By signing below, you are verifying that the information provided in the Human Subjects Review Form and attached information is accurate and that the project will be completed as indicated.

Signatures:

Revised 5/1/06



Principal Investigator

10/05/14

Date:

Student Adviser (if applicable)

Date:

5. In non-technical language, describe the purpose of the study and the rationale for this research.

This quantitative study will measure if human resource personnel and hiring managers view credentials obtained through Massive Open Online Courses (MOOCs) as viable alternatives to traditional post-secondary education. Using portions of Suchman's (1995)¹ taxonomy on legitimacy theory as a conceptual framework, the study will measure MOOC legitimacy among participants in a twofold manner. First, participants will be asked to complete a traditional survey rating their acceptance level of MOOC characteristics on a Likert-like scale. Second, the survey will ask participants to indicate their acceptance of MOOC credentials in relation to traditional job qualifications through choice-based conjoint analysis—a survey method that presents participants with several “product” choices and asks them to select one per choice set. During this portion of the survey, participants will review several mock pools of job applicants, each applicant with a different set of qualifications (including some with MOOC credentials), and be asked to select the most qualified applicant per choice-set based on mock vacancy announcements.

6. In non-technical language, describe the study procedures.

I will study human resource personnel and hiring managers **throughout the U.S.** in 26 U.S. metropolitan areas, which are grouped as follows: Midwest: Indiana, Illinois, Missouri, Ohio; Northeast: Connecticut, Maryland, New York, Pennsylvania, Rhode Island; South: Florida, North Carolina, Oklahoma, Tennessee, Texas, Virginia; and West: Arizona, California, Washington, Oregon, Utah.

Midwest—

Chicago

—Columbus

—Indianapolis

—Kansas City

—St. Louis

Northeast—

Baltimore

—Buffalo

—Hartford

—Philadelphia

—Pittsburgh

—Providence—Only a state chapter

South—

Charlotte

—Miami

—Nashville

—San Antonio

—Tulsa

—Virginia Beach

West—

Los Angeles

—Phoenix

—Portland

—Sacramento

—Salt Lake

¹ Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of management review*, 20(3), 571-610. doi: 10.5465/AMR.1995.9508080331

— San Diego
Seattle

Participants will be recruited using social media and email. The process for each is described in more detail below:

- Social media: LinkedIn and Facebook ads targeting human resource personnel and hiring managers in the metropolitan areas listed above will be used for recruitment purposes. The ads will contain a brief survey invitation, link to the survey, and information regarding the study's gift card drawing (which participants may register for upon completion of the survey). Upon clicking on a link, participants will be taken to a survey screen explaining the study, identifying the researcher, explaining the safety and confidentiality protocols that I will take when conducting the study, explaining that the study will not collect personal identifying information from participants, inform the participant that s/he may opt-out of the study at any time, and indicate that the survey will take approximately 10-minutes to complete. This Facebook ad and LinkedIn campaign ran for three weeks from the date of initial IRB approval.

In addition to the social media campaign described above, the HR Hero Newsletter will post a link to my survey on its employer forum page. The post will remain online until my target sample size is reached, and the post will read as follows:

I am a graduate student from the University of North Dakota conducting a survey on HR managers' and HR personnel's' perceptions of Massive Open Online Courses (MOOCs). After completing the ten-minute survey, you may register for one of four \$50 Amazon.com gift cards to be give away after I reach my target response rate. To take my survey and learn more about the participant rights and protections, please click below:

Survey link: <https://moocstudy.info/cgi-bin/ciwweb.pl?studyname=MOOCLickert>

Contact information: Alyssa Martin, University of North Dakota Educational Leadership Department, email: alyssa.martin@my.und.edu

- Email: A personalized will be sent to board of directors members of the Society for Human Resource Management (SHRM) chapters throughout the U.S. in the 26 metropolitan areas listed above. These email addresses were obtained from the SHRM chapter websites, and the email will explain this. The email will also identify the researcher, explain the safety and confidentiality protocols that I will take when conducting the study, and explain that the study will not collect personal identifying information from participants. The email will invite the recipient to participate in the study by clicking on a link and request that they forward the email to other human resource professionals in their area for purposes of participation. The email will also explain that participants are eligible to participant in a drawing for a one of four \$50 Amazon.com gift cards as described below. The email will be followed by a reminder email two weeks after the initial email is sent. Copies of the email invitations are included on pages one through three of this document.

At the end of the survey, participants may choose to click a link that will open a Survey Monkey form and will allow participants to enter a drawing for one of four \$50 Amazon.com gift card. Information collected for the drawing will include the individual's name and email address. This information will only be used for purposes of the drawing. It, in no way, will be linked to the survey information collected for my study and a message to this effect will be included on the drawing registration form.

7. Where will the research be conducted?

The survey will be administered online using survey software with conjoint analysis capabilities. Participants will complete the survey in a location with Internet access that is convenient for them.

8. Describe what data will be recorded.

Only non-identifying data will be recorded for purposes of the study. These data include the following demographic information: sex, age range, education level, form of educational attainment (online, on campus, mix of online and on campus), metropolitan area where employed, years in position, position classification (human resources staff, human resources management, hiring manager or other), and industry category of company for which employed (six options will be given based on U.S. Census industry classifications). Additional recorded data will be the answers to questions concerning participant acceptance of MOOC characteristics and mock applicant selections made during the conjoint analysis portion of the survey.

9. How will data be recorded and stored (that is, will it be coded, anonymous, etc.)?

Research data will be recorded through an online survey system, which will be hosted on a SSL (Secure Sockets Layer) server. Participants will not provide identifying information during this study. Research data will be downloaded to a password protected computer and backed up on an external hard drive. Both pieces of equipment shall be kept in the principle investigator's locked home office. Only the principal investigator, her advisor, and dissertation committee members will have access to the data. All data will be retained for three years, after which time they will be properly destroyed, and the principle investigator shall ensure no traces remain.

10. Describe procedures you will implement to protect confidentiality and privacy of participants.

The online survey will be hosted on a SSL (Secure Sockets Layer) server with 256-bit encryption, protecting the confidentiality of participant responses. Participants will not provide identifying information during this study and will be assured in through survey screens that only the principle researcher and her dissertation committee will have access to individual survey responses. All data will be aggregated when presented in the dissertation. The survey software has a feature that downloads cookies to the participant's computer preventing them from taking the survey more than once. This feature has been enabled to ensure that participants do not take the survey multiple times.

11. Describe the nature of the subject population and the estimated number of subjects.

The population for this study is U.S. human resource personnel and hiring managers from 26 metropolitan areas (see complete list of metropolitan areas under question 6). I selected this group of participants because human resource personnel and hiring managers often serve as a critical gatekeeper in the hiring process; therefore, their view of MOOC credentials is core to understanding if MOOCs are a viable alternatives to traditional post-secondary education. The survey will contain a short description of MOOCs to acclimate participants who are unfamiliar with these free online courses. There is minimal risk to participate in the study.

Appendix F
IRB Permissions



DIVISION OF RESEARCH & ECONOMIC DEVELOPMENT

UND.edu

**Institutional Review Board
c/o Research Development
and Compliance**
Twamley Hall, Room 106
264 Centennial Drive Stop 7134
Grand Forks, ND 58202-7134
Phone: 701.777.4279
Fax: 701.777.6708

July 28, 2014

Alyssa Martin
123 Sioux Avenue
Bismarck, ND 58501

Dear Ms. Martin:

We are pleased to inform you that your project titled, "Is MOOC Madness Here to Stay? An Institutional Legitimacy Study" (IRB-201407-031) has been reviewed and approved by the University of North Dakota Institutional Review Board (IRB). The expiration date of this approval is May 31, 2015.

As principal investigator for a study involving human participants, you assume certain responsibilities to the University of North Dakota and the UND IRB. Specifically, any adverse events or departures from the protocol that occur must be reported to the IRB immediately. It is your obligation to inform the IRB in writing if you would like to change aspects of your approved project, prior to implementing such changes.

When your research, including data analysis, is completed, you must submit a Research Project Termination form to the IRB office so your file can be closed. A Termination Form has been enclosed and is also available on the IRB website.

If you have any questions or concerns, please feel free to call me at (701) 777-4279 or e-mail michelle.bowles@research.und.edu.

Sincerely,

A handwritten signature in cursive script that reads "Michelle L. Bowles".

Michelle L. Bowles, M.P.A., CIP
IRB Coordinator

MLB/jle

Enclosures

REPORT OF ACTION: EXEMPT/EXPEDITED REVIEW
University of North Dakota Institutional Review Board

Date: 7/18/2014 Project Number: IRB-201407-031

Principal Investigator: Martin, Alyssa

Department: Educational Leadership

Project Title: Is MOOC Madness Here to Stay? An Institutional Legitimacy Study

The above referenced project was reviewed by a designated member for the University's Institutional Review Board on 7/28/2014 and the following action was taken:

- Project approved. **Expedited Review** Category No. _____
Next scheduled review must be before: _____
- Copies of the attached consent form with the IRB approval stamp dated _____
must be used in obtaining consent for this study.
- Project approved. **Exempt Review** Category No. 2
This approval is valid until MAY 31 2015 as long as approved procedures are followed. No periodic review scheduled unless so stated in the Remarks Section.
- Copies of the attached consent form with the IRB approval stamp dated N/A
must be used in obtaining consent for this study.
- Minor modifications required. The required corrections/additions must be submitted to RDC for review and approval. **This study may NOT be started UNTIL final IRB approval has been received.**
- Project approval deferred. **This study may not be started until final IRB approval has been received.** (See Remarks Section for further information.)
- Disapproved claim of exemption. This project requires Expedited or Full Board review. The Human Subjects Review Form must be filled out and submitted to the IRB for review.
- Proposed project is not human subjects research as defined under Federal regulations 45 CFR 46 or 21 CFR 50 and does not require IRB review.
 - Not Research
 - Not Human Subject

PLEASE NOTE: Requested revisions for student proposals MUST include adviser's signature. All revisions MUST be highlighted and submitted to the IRB within 90 days of the above review date.

Education Requirements Completed. (Project cannot be started until IRB education requirements are met.)

cc: Jeffrey Sun, Ph.D.

Michelle R. Bond 7/28/2014
Signature of Designated IRB Member Date
UND's Institutional Review Board

If the proposed project (clinical medical) is to be part of a research activity funded by a Federal Agency, a special assurance statement or a completed 310 Form may be required. Contact RDC to obtain the required documents.
(Revised 10/2006)

**Institutional Review Board
c/o Research Development
and Compliance**

Twamley Hall, Room 106
264 Centennial Drive Stop 7134
Grand Forks, ND 58202-7134
Phone: 701.777.4279
Fax: 701.777.6708

October 9, 2014

Principal Investigator:	Alyssa Martin
Project Title:	"is MOOC Madness Here to Stay? An Institutional Legitimacy Study"
IRB Project Number:	IRB-201407-031
Project Review Level:	Exempt 2
Date of IRB Approval:	10/09/2014
Expiration Date of This Approval:	07/27/2017

The Protocol Change Form and all included documentation for the above-referenced project have been reviewed and approved via the procedures of the University of North Dakota Institutional Review Board.

You have approval for this project through the above-listed expiration date. When this research is completed, please submit a termination form to the IRB.

The forms to assist you in filing your project termination, adverse event/unanticipated problem, protocol change, etc. may be accessed on the IRB website: <http://und.edu/research/resources/human-subjects/>

Sincerely,



Michelle L. Bowles, M.P.A., CIP
IRB Coordinator

MLB/jle

Enclosures

Cc: Dr. Margaret Healy

REPORT OF ACTION: PROTOCOL CHANGE
University of North Dakota Institutional Review Board

Date: 9/18/2014 Project Number: IRB-201405-459

Principal Investigator: Martin, Alyssa

Department: Educational Leadership

Project Title: Is MOOC Madness a Passing Fad? An Institutional Legitimacy Study

The above referenced project was reviewed by a Designated Member for the University's Institutional Review Board on 9/18/2014 and the following action was taken:

Protocol Change approved. **Expedited Review** Category No. _____
Next scheduled review must be before: _____

Copies of the attached consent form with the IRB approval stamp dated _____ must be used in obtaining consent for this study.

Protocol Change approved. **Exempt Review** Category No. 2
This approval is valid until MAY 31 2015 as long as approved procedures are followed.
No periodic review scheduled unless so stated in the Remarks Section.

Copies of the attached consent form with the IRB approval stamp dated N/A must be used in obtaining consent for this study.

Minor modifications required. The required corrections/additions must be submitted to RDC for review and approval. **This study may NOT be started UNTIL final IRB approval has been received.**
(See Remarks Section for further information.)

Protocol Change approval **deferred**. **This study may not be started until final IRB approval has been received.**
(See Remarks Section for further information.)

Protocol Change **disapproved**. **This study may not be started until final IRB approval has been received.**

REMARKS: Any unanticipated problem or adverse occurrence in the course of the research project must be reported within 5 days to the IRB Chairperson or RDC by submitting an Unanticipated Problem/Adverse Event Form.

Any changes to the Protocol or Consent Forms must receive IRB approval prior to being implemented (except where necessary to eliminate apparent immediate hazards to the subjects or others).

PLEASE NOTE: Requested revisions for student proposals **MUST** include adviser's signature. All revisions **MUST** be highlighted and submitted to the IRB within 90 days of the above review date.

Education Requirements Completed. (Project cannot be started until IRB education requirements are met.)

cc: Dr. Margaret Healy


Signature of Designated IRB Member Date
UND's Institutional Review Board

If the proposed project (clinical medical) is to be part of a research activity funded by a Federal Agency, a special assurance statement or a completed 310 Form may be required. Contact RDC to obtain the required documents.

(Revised 10/2006)

PERMISSION EMAIL FROM HR HERO

Oct 1 (4 days ago)

Celeste Blackburn CBlackburn@blr.com via my.und.edu

to alyssa.martin

Good afternoon,

Kevin forwarded me your request about using our forum or Facebook page as a place to gather information for your survey. While this wouldn't be a good fit for our Facebook page, I do think it would work well on our forum (forum.hrlaws.com). The only problem is that we are currently set up to only let customers with customer #s sign up to participate on the forum. Since you get your newsletter through the insurance company, you wouldn't have a unique customer number to use.

However, I would like to offer to make the posts for you. I make it clear that I am making the post for you and will include your contact information. You will still be able to see any responses and I can post replies or further post for you as we go.

If this is OK with you, please send me the text you would like in the forum post and I will get it posted asap.

Celeste Blackburn
Business & Legal Resources, Senior Editor

Appendix G Software Permission



Alyssa Martin <martin.alyssa@gmail.com>

Sawtooth Software Grant

2 messages

Sawtooth Software <support@sawtoothsoftware.com>

Thu, May 1, 2014 at 4:37 PM

To: martin.alyssa@gmail.com

Dear Alyssa,

Upon review of your grant application we have decided to award you the software you requested. Congratulations! Attached please find one license for CBC and CiW (general interviewing questions if you need them). The software can be downloaded from our website at <http://www.sawtoothsoftware.com/support/downloads>. When you run it the first time, the software will ask if you want to import licenses or run it in demonstration mode. Browse to these licenses and import them and you'll be all set. Your licenses will also give you access to the SMRT simulation software.

Based on your proposal, these licenses are set to expire on May 31, 2015.

As mentioned on the grant page, we expect to hear from you again when your research is complete with an executive summary of your findings. In the meantime, we'd like to highlight your grant on our website for other students and practitioners to read about how conjoint analysis is being used today. Please provide the following:

- 1) Picture at least 200 pixels wide, ideally from your shoulders up (shrinking pictures is easy, expanding goofy things up)
- 2) Some personal information about your schooling, hobbies, etc. written in the third person (Brian is best known for his irrational love of cheese...)
- 3) Information about the research you are pursuing, in general and/or specific to the project for which you will use our software
- 4) Any links to things like personal or academic websites, blogs, or an e-mail address if you are open to people contacting you in the future

Then, once your research is complete, we will update your listing with the executive summary and perhaps link to a copy of your paper in its entirety (or host a copy of the paper on our site for people to download).


Also please note that academic papers often require the author to explain the methodology being used in detail. We hope that you will use the help files, technical papers on our website, and academic references contained in these documents to find the answers you need. We are happy to help with technical aspects of your survey programming if you get stuck.

If you need help fielding your survey, please let me know the timeline and scope of your plans and we can see what we can do.

If you have any questions about installing the software, please let me know.

Again, congratulations and best of luck.

Regards,
Brian

 2014 Grant Recipients.license
11K

Appendix H
MOOC Mission Statements

Table 34. MOOC Mission Statements

MOOC provider	Mission Statement
Coursera (2014a)	<p>Coursera is an education platform that partners with top universities and organizations worldwide, to offer courses online for anyone to take, for free.</p> <p>We envision a future where everyone has access to a world-class education. We aim to empower people with education that will improve their lives, the lives of their families, and the communities they live in.</p>
edX (2014a)	<p>Our mission is to give a world-class education to everyone, everywhere, regardless of gender, income or social status.</p>
Udacity (2014)	<p>Our mission is to bring accessible, affordable, engaging, and highly effective higher education to the world. We believe that higher education is a basic human right, and we seek to empower our students to advance their education and careers.</p>

Note. Adapted from *About* by Coursera, 2014, <https://www.coursera.org/about/>; *Do you want to change the future of education?* by edX (2014), <https://www.edx.org/jobs> ; *About us* by Udacity, 2014), <https://www.udacity.com/us>.

Appendix I
Conjoint Analysis Choice Counts

Table 35. Conjoint Analysis Choice Counts

Qualifications	Percent of Preference	χ^2
Education level		371.52*
Formal education completed: high school diploma only	5.00%	
Formal education completed: some college	12.00%	
Formal education completed: associate's degree	19.00%	
Formal education completed: bachelor's degree	50.00%	
MOOCs completed		40.03*
No MOOCs completed	14.10%	
Some MOOC courses completed but less than associate's degree equivalent	19.70%	
Completed the equivalent of associate's degree in MOOCs	22.20%	
Completed equivalent of bachelor's degree in MOOCs	29.70%	
Experience		236.65*
Experience: none	3.00%	
Experience: less than preferred (<3 years)	13.60%	
Experience: equivalent to preferred (= 3 years)	31.20%	
Experience: more than preferred (>3 years)	37.40%	
None	14.40%	

Table 35. cont.

Qualifications	Percent of Preference	χ^2
Education Level x MOOCs completed		37.84*
High school diploma x No MOOCs completed	1.20%	
High school diploma X Some MOOC courses completed but less than associate's degree equivalent	1.20%	
High school diploma x Completed the equivalent of associate's degree in MOOCs	4.20%	
High school diploma x Completed equivalent of bachelor's degree in MOOCs	12.40%	
Some college x No MOOCs completed	4.30%	
Some college x Some MOOC courses completed but less than associate's degree equivalent	8.00%	
Some college x Completed the equivalent of associate's degree in MOOCs	13.10%	
Some college x Completed equivalent of bachelor's degree in MOOCs	23.10%	
Associate's degree x No MOOCs completed	9.70%	
Associate's degree x Some MOOC courses completed but less than associate's degree equivalent	15.00%	
Associate's degree x Completed the equivalent of associate's degree in MOOCs	21.10%	
Associate's degree x Completed equivalent of bachelor's degree in MOOCs	30.50%	

Table 35. cont.

Qualifications	Percent of Preference	χ^2
Bachelor's degree x No MOOCs completed	40.00%	
Bachelor's degree x Some MOOC courses completed but less than associate's degree equivalent	55.50%	
Bachelor's degree x Completed the equivalent of associate's degree in MOOCs	51.20%	
Bachelor's degree x Completed equivalent of bachelor's degree in MOOCs	53.90%	
Education Level x Experience		17.248*
High school diploma x None	0.00%	
High school diploma only x Less than preferred (<3 years)	2.20%	
High school diploma only x Equivalent to preferred (= 3 years)	4.90%	
High school diploma only x More than preferred (>3 years)	12.30%	
Some college x None	1.20%	
Some college x Less than preferred (<3 years)	8.80%	
Some college x Equivalent to preferred (= 3 years)	15.80%	
Some college x More than preferred (>3 years)	22.20%	
Associate's degree x None	2.30%	
Associate's degree x Less than preferred (<3 years)	6.70%	
Associate's degree x Equivalent to preferred (= 3 years)	27.10%	

Table 35. cont.

Qualifications	Percent of Preference	χ^2
Associate's degree x More than preferred (>3 years)	39.20%	
Bachelor's degree x None	8.10%	
Bachelor's degree x Less than preferred (<3 years)	39.10%	
Bachelor's degree x Equivalent to preferred (= 3 years)	76.60%	
Bachelor's degree x More than preferred (>3 years)	76.80%	
MOOCs completed x Experience		4.87
No MOOCs completed x None	1.20%	
No MOOCs completed x Less than preferred (<3 years)	8.60%	
No MOOCs completed x Equivalent to preferred (= 3 years)	2.01%	
No MOOCs completed x More than preferred (>3 years)	2.57%	
Some MOOC courses completed but less than associate's degree equivalent x None	1.20%	
Some MOOC courses completed but less than associate's degree equivalent x Less than preferred (<3 years)	11.90%	
Some MOOC courses completed but less than associate's degree equivalent x Equivalent to preferred (= 3 years)	31.60%	
Some MOOC courses completed but less than associate's degree equivalent x More than preferred (>3 years)	34.10%	

Table 35. cont.

Qualifications	Percent of Preference	χ^2
Completed the equivalent of associate's degree in MOOCs x None	3.60%	
Completed the equivalent of associate's degree in MOOCs x Less than preferred (<3 years)	13.90%	
Completed the equivalent of associate's degree in MOOCs x Equivalent to preferred (= 3 years)	32.30%	
Completed the equivalent of associate's degree in MOOCs x More than preferred (>3 years)	39.40%	
Completed equivalent of bachelor's degree in MOOCs x None	6.10%	
Completed equivalent of bachelor's degree in MOOCs x Less than preferred (<3 years)	20.10%	
Completed equivalent of bachelor's degree in MOOCs x Equivalent to preferred (= 3 years)	39.80%	
Completed equivalent of bachelor's degree in MOOCs x More than preferred (>3 years)	52.20%	

* $p < .05$

Appendix J Reprint Permission

1/14/2015

Gmail - Re: Request to reprint table



Alyssa Martin <martin.alyssa@gmail.com>

Re: Request to reprint table

2 messages

cbcse, TC <cbcse@exchange.tc.columbia.edu>
To: "Martin, Alyssa" <alyssa.martin@my.und.edu>
Cc: Meridith Friedman <mf2997@tc.columbia.edu>

Sun, Jan 11, 2015 at 11:39 PM

Hello Alyssa

Feel free to print the table with the appropriate citation. Thanks for asking and good luck with your work.

Fiona Hollands

*Fiona Hollands, Ph.D.
Associate Director/Senior Researcher
Center for Benefit-Cost Studies of Education
Teachers College, Columbia University
525 West 120th Street
New York, NY 10027*

*Tel: 212 678 3351
<http://cbcse.org/>*

On Sun, Jan 11, 2015 at 12:07 AM, Martin, Alyssa <alyssa.martin@my.und.edu> wrote:

To whom it may concern:

I am working on a dissertation related to Massive Open Online Courses and am requesting your permission to reprint, in my dissertation, the table (Box 2) on page 30 of the following publication, which highlights the difference between cMOOCs and xMOOCs:

Hollands, F. M., & Tirthali, D. (2014). MOOCs: expectations and reality. Full report. Center for BenefitCost Studies of Education, Teachers College, Columbia University, NY.

Retrieved from: http://cbcse.org/wordpress/wpcontent/uploads/2014/05/MOOCs_Expectations_and_Reality.pdf

Thank you in advance for your consideration.

Sincerely,

Alyssa Martin

<https://mail.google.com/mail/u/0/?ui=2&ik=af4bdb58898&view=pt&search=inbox&th=14adca7356437d6b&siml=14adca7356437d6b&siml=14adef8f66862fd>

1/2

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