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MOOCs: Innovation, Disruption
and Instructional Leadership in Higher Education

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Education

by

Joanna Gerber

2014

ABSTRACT OF THE DISSERTATION

MOOCs: Innovation, Disruption
and Instructional Leadership in Higher Education

by

Joanna Gerber

Doctor of Education

University of California, Los Angeles, 2014

Professor Diane Durkin, Co-Chair

Professor Christina Christie, Co-Chair

In the beginning rush of attention surrounding MOOCs (Massive Open Online Courses), there was considerable speculation regarding the ideal use and potential impact of this new innovation on teaching, learning, and traditional higher educational structures. Yet universities and colleges were rushing to implement MOOCs despite neither data nor clear understanding regarding their potential disruptive force on the educational landscape. To examine the MOOC phenomenon more closely, I conducted qualitative research that examined MOOCs integration at higher education institutions identified to be at the forefront of the MOOC movement. Framed using Everett Rogers' model of *innovation diffusion* (Rogers, 1962), MOOC early adopters were

defined as faculty members from US institutions who offered MOOCs between April 2012 and December 2013. My study researched initial MOOC implementation efforts in order to better determine motivations, implications and future impact on higher education, which will provide greater context to this rapidly shifting innovation. My findings indicate that the primary institutional motivation to sponsor MOOCs was to raise and/or enhance their institutional brand. The findings also indicated that faculty that self-selected to participate in MOOCs at the early stage was open to experimentation as well as to the inherent risks associated with the trial of a new educational innovation. This study uncovered important implications on the main pedagogical mission of the university and its professors as a result of instructor and institutional involvement with MOOCs. More specifically, this study revealed that MOOCs have pushed pedagogical issues to the forefront, and faculty early adopters have shifted their classroom teaching in ways believed to improve the classroom experience and create more interactive learning opportunities for students as a result of MOOCs.

The dissertation of Joanna Gerber is approved.

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Dedication

I dedicate this manuscript, along with deep gratitude, to my mentor Dr. Tex Boggs, who was the inspiration for this research. Your guidance, advice and wise counsel have fundamentally changed me for the better. Throughout my career, and in life, I promise to approach all new ‘opportunities’ with the tools and perspective that you’ve instilled in me. Thank you for your belief and encouragement throughout this process. The leader I will become is because of you.

And most of all, this work is dedicated to my amazing parents Dr. Michael and Kathleen Gerber. The depth of your love and belief in me fuels everything that I do and everything that I am. You encourage and challenge me to be a better person, and I strive every day to make you proud. You are both the ultimate educators, caregivers, humorists (although iffy at times), friends and overall inspiration. To my Mom, who now has shepherded (with great love) two different Gerbers through their dissertations and survived, and to my Dad (my longwinded but beloved thought partner) who now gets to be “the other Dr. Gerber”. Thank you does not even begin to cover it. I am, without reservation, forever grateful. It may be long overdue, but please consider this manuscript my very public proclamation that you were both right. About everything. I love you.

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And to my favorite munchkins: Tavi, Zelda, Jackson, Emma, Ella, Sam & Savvy: Do huge, amazing things with your lives. Dream big, and surround yourself with laughter and love (like the kind I've constantly received from your respective parents. Speaking of which, be nice to your parents - they were cool once.)

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Chapter One: Problem Statement

A growing number of higher education institutions are swiftly adopting MOOCs (Massive Open Online Courses) on their campuses, either through the specific development of MOOCs or the integration of existing MOOCs into their curriculum. As the MOOC educational landscape continues to evolve, what remains to be determined are the underlying motivations and longer-term implications of MOOCs as an educational innovation on both the instructors and the institutions.

This project investigated the motivations, implications and future potential of MOOCs at various higher education institutions as reported by faculty members who were early adopters. I conducted a qualitative research study that examined perspectives and experiences of the faculty members who were involved in the development and teaching of the first wave of MOOCs. I then examined the resulting data through the framework of *innovation diffusion* (Rogers, 1962) to determine innovation adoption patterns and predictable behaviors.

Background

MOOCs are free, large-scale online courses offered and taught by accredited institutions of higher education in which anyone can enroll, regardless of age, location or previous education (J. Johnson, 2012). There are many indicators that MOOCs represent a major higher education innovation. With the explosion of MOOCs onto the higher education landscape, for example, a rapidly growing numbers of schools, of different sizes and structures, are rushing to integrate MOOCs into their curriculum (Azevedo, 2012). Over the last 24 months, hundreds of institutions worldwide have begun offering MOOCs to students, over one hundred of institutions have

partnered with third-party MOOC providers and a small number of institutions publically announced their intention to award credit for MOOCs (Kolowich, 2013c; Lytle, 2012; “What You Need to Know About MOOC’s,” n.d.).

Since the innovation is still new, there is little research or agreement regarding the potential benefits, impact and outcomes of this new large-scale, open-access learning model. Yet even without comprehensive information on best practice, many schools appear to truncate their typical integration practices and push forward with rapid MOOC adoption. For instance, in mid-October 2012 the University of Texas publically announced their intent to offer credit for MOOCs in an effort to “lower the cost of degree” for students (Kolowich, 2012b). Two days later the online journal that first reported the development had to post a correction, clarifying that the University changed their position and would only be offering credit to *existing* UT students.

MOOCs as an Innovation

MOOCs set themselves apart from other online courses due to the extremely large enrollment capability - some recent courses have topped 30,000 enrollees - and the open-source accessibility through both universities and independent provider websites (“What You Need to Know About MOOC’s,” n.d.). In many cases the courses available as MOOCs are similar to (or the same as) existing undergraduate courses offered live at elite, prestigious universities across the country. Recently both industry and mainstream media have heralded these new courses as an unprecedented innovation in education. Some thought leaders note that the dynamic shift in education caused by MOOCs is not the online learning element. Rather, the true innovation lies in the large-scale, open-access component (Ripley, 2012). This level of open-access poses a

serious challenge to the traditional higher education model, which was built for limited access and fixed size.

Historically, higher education has a slow rate of adoption of new innovations. For instance, a study of 238 institutions showed that the time between the introduction of a major innovation into the market and mainstream adoption averaged almost a quarter of a century (Getz, Siegfried, & Anderson, 1997). MOOCs, in contrast, appear to be evolving at an unprecedented rate (Fain, 2012; Staton, 2011). What remain to be determined are the underlying motivations and longer-term implications of MOOCs on institutions that have been involved with MOOCs during the initial stage of adoption. With additional data, higher education leaders can better identify predictors and/or draw conclusions that might help institutional decision-making regarding the future impact of MOOCs, and related educational innovations, on higher education.

In an effort to remain competitive and current, some college and university campuses rapidly developed curriculum and policies in an effort to support the MOOC learning model. Yet no shared assessment existed that detailed the capabilities of MOOCs or their potential impact on higher education. Little to no research was available to document the motivations, decision-making processes and implications of MOOC adoption, nor were there comprehensive analyses of best practices relating to integration options. Without these data, higher education institutions continue to invest precious resources in MOOC innovation. From the perspective of early adopting faculty members, this project sought to more fully identify the motivations, decision-making processes, and perceptions of MOOCs' impact and role within higher education, and to identify what early adoption practices that fostered such an unusually rapid rate of adoption.

MOOCs Relationship to Online Learning

Institutions of higher education increasingly seek new ways to improve access to college level courses through the use of technology in order to meet the changing demands of increasingly nontraditional students (Van Der Werf & Sabatier, 2009). Nontraditional students have begun embracing online learning and are benefiting from the flexibility of asynchronous, self-paced courses. One study, published in 1999, indicated that students perceived that the advantage to taking online learning courses (as opposed to traditional, classroom courses) was the “saving of time, scheduling and [the ability to] take more courses” (Keengwe & Kidd, 2010, p. 6). More recent studies have found that some students even prefer online courses, reporting a higher level of learning and time spent engaged with the course materials (Hannay & Newvine, 2006; LeBlanc, 2012). For the purposes of this study, online education was defined as digitally facilitated academic courses taken by enrolled students and accessed online through personal computer and/or mobile devices (Allen & Seaman, 2010; Noble, 2001)

While MOOCs are still untested and unproven, their core delivery component, online, is now widely accepted throughout Academia. Once considered far inferior to classroom learning, the majority of academics and higher education administrations now accept online courses as a legitimate delivery model (Schuetze & Slowey, 2000). Widespread adoption of online education, which might appear to have been rapid, actually evolved extremely slowly over almost three decades. Radical innovation within the dominant operating structures of higher education are rare for an industry “entrenched in legacy systems [and] behemoth operating models” (Flanagan, 2012, p. 14). As evidenced by the slow integration of online learning, higher education is not known for their openness to testing new concepts or their rapid adoption practices. Therefore,

MOOCs represent a vast contrast to traditional higher education innovation adoption rates with a rapid pace of proliferation that appears unprecedented.

Pace of Innovation

Since MOOCs are still in their infancy, some institutions have taken the expected wait and see approach as they watch to see if and how the landscape shifts to accommodate this new innovation. Others, though, have taken immediate action and begun to adopt MOOCs in a variety of capacities. At last count over one hundred different institutions have created and disseminated over five hundred online courses intended for large scale, open-access use (“Course Catalog,” n.d., “What You Need to Know About MOOC’s,” n.d.; Rivard, 2013a). Other institutions, often without the resources to create these courses themselves, have integrated MOOCs into their curriculum in order to augment or supplement existing courses. In late 2012, the American Council on Education (ACE) publically announced their intent to evaluate MOOCs and issue college credit through prior learning, which would be transferable to ACE partner institutions in North America (Fain, 2012). Additionally, a small number of institutions - both in the US and abroad – continue to explore how they can offer college credit to students enrolled in MOOCs that are taught and offered by other universities (Bishop, 2013; Jaschik, 2013).

In a preliminary and nonscientific survey conducted with 38 university administrators and faculty, over 56% of respondents agreed that MOOCs were “somewhat and/or very important” to their university’s strategic vision (unpublished survey data, Gerber, September 24, 2012). Yet as time passed, increasing questions remain regarding how to provide credit for MOOC learning, develop faculty interest in MOOCs, and understand the overall implications and impact of MOOCs on higher education. Although many survey participants expressed

interest and excitement about the “dynamic shift” likely to occur in higher education due to MOOCs (Fain, 2012), faculty and administrators also reported a growing skepticism and anxiety around the unknown elements and potential impact of MOOCs on higher education (Hollands & Tirthali, 2014). Overall, a general lack of available data persists regarding how institutions are developing strategic plans, curricula models and policy in support of MOOC integration. In addition, the rapid pace in which MOOCs are evolving creates a challenge for most traditional educational frameworks to control.

Conceptual Framework

The accelerated pace of adoption appears to mimic the early adoption phase of Everett Rogers’ theory of innovation diffusion (Rogers, 1962), which has traditionally been used to illustrate and predict product adoption into mainstream business. Rogers’ theory depicts five unique stages essential to innovation diffusion: Knowledge, Persuasion, Decision, Implementation and Confirmation. Rogers argues that successful acceptance of a new innovation is directly proportional to the initial rate of early adoption. The faster an innovation travels through the five stages the greater chance an innovation has to spread into the mainstream of an industry. To this end, one of the key differentiators of MOOCs as compared to past educational innovations has been the extremely high level of interest and the unusually fast rate of integration as suggested by the high level of media and industry coverage.

Little research is available that examines educational practices through the lens of innovation diffusion, but the theoretical framework is often cited within business and social services to guide market integration and predict new practices. Within the few available studies from education, “innovation diffusion” has been used as a framework for examining “adoption

patterns and characteristics of faculty who integrate computer technology for teaching and learning in higher education” (Sahin & Thompson, 2006). Another study adapted specific stages from Rogers’ theory to construct an alternative model for predicting students’ effectiveness in distance and online learning based on patterns of their prior knowledge and perceptions (O’Malley & McCraw, 1999). Both of these studies utilized specific attributes of *innovation diffusion* to identify patterns of adoption and create predictive models.

Identification of patterns of motivation and implications could dramatically help alleviate much of the uncertainty surrounding MOOCS. In the rapidly shifting educational landscape caused by the disruption of massive open online courses, universities and colleges appear to be making organizational and policy decisions without a full understanding of the implementation patterns and/or impact. My study researched these initial MOOC implementation efforts in order to better determine motivations, implications, and future impacts on higher education to provide an empirical context to better understand this rapidly shifting innovation.

Research Project

For this project, I examined the decision making processes and implications on higher education institutions in regard to innovation adoption by documenting MOOC implementation practices and perspectives of faculty members who were early adopters. My study used Rogers’ Innovation Diffusion Theory (1962) from which to frame the primary influences and adoption patterns of these universities. I also researched perceptions of the future impact of MOOCs on higher education in general. I sought to determine the motivating factors and goals of MOOC integration as identified by key academic stakeholders. Because MOOCs continue to evolve so rapidly, a need existed to document the adoption practices, as identified by lead faculty

members, in order to provide a perspective on the longer-term implications on faculties, institutions, and higher education in general.

Research Questions

This study examined the following research questions:

1. What motivations and influences drove the early adoption of MOOC development and implementation, as reported by MOOC early adopters?
2. What were the benefits and challenges of being early adopters, as reported by MOOC early adopters?
3. What have been the impact and/or implications on the institution of being a MOOC innovation early adopter, as reported by MOOC early adopters?
4. What is the perceived future of MOOCs as an educational innovation in higher education, as reported by MOOC early adopters?

Research Design

This study was a qualitative study that utilized document review, an online descriptive questionnaire and follow-up personal interviews. Qualitative methodology was the most appropriate approach because the combination of questionnaire data and document review, along with the perspectives and personal narratives gathered from individual interviews, allowed for the clearer identification of descriptive details about the patterns in decision-making behavior. In addition, I gathered narrative data from respondents through these qualitative methods that represented their deep reflection on the impact and implications of MOOCs which might be

extrapolated to larger innovation adoption practices. Increasingly, qualitative methodology is recognized for use in studying new or little-researched problems, allowing for detailed description of “multiple viewpoints, perspectives, positions, and standpoints” (R. B. Johnson, Onwuegbuzie, & Turner, 2007, p. 114).

The qualitative approach allowed me to work within the “boundary markers” that contain the process of MOOC innovation and integration, and analyze the phenomenon from “within the specific system” (Merriam, 2009). My study focused on specific faculty member’s experiences and perspectives regarding MOOC development and implementation processes, and was enhanced by institutional document review. The use of multiple data collection methods facilitated analysis of narratives and perspectives from various angles, and allowed clearer evaluation of themes and commonalities.

I chose to use a qualitative design because it allowed me to create detailed documentation of how different kinds of institutions made decisions with respect to implementing MOOCs as perceived and reported by the faculty members who developed and taught the courses. One of the noted benefits of this type of qualitative research (data review, questionnaires and personal interviews) is its ability to provide a “complex account[ing] of a situation in which both qualitative and quantitative data contribute to an understanding of events, circumstances, causes and consequence” (Tellis, 1997). Qualitative research is noted for best use in investigating complex, fast-moving phenomena from multiple perspectives and viewpoints (Feagin, 1991; Tellis, 1997). This methodology allows for the detailed examination of a specific event or phenomenon from multiple perspectives and can illuminate larger issues with an “end product [that is] richly descriptive” (Merriam, 2009, p. 39). Qualitative research is also noted to be best for “how” and “why” investigation. Thus, qualitative research was appropriate for my research

questions which sought to determine the motivations (why) and implementation details (how) for the early adoption of MOOCs as an educational innovation.

Research Methods

My study included a widely distributed questionnaire to identified MOOC faculty early adopters, as well as document review and personal interviews. From records of MOOCs during the initial wave of MOOCs, I gathered and analyzed public information regarding the courses and sponsoring institutions, administered an online questionnaire to the faculty members of record, and conducted follow-up individual interviews with faculty involved in MOOC adoption and implementation processes.

Public documents, from industry media reports, third-party hosting platforms and institutional public disclosure comprised the bulk of the document collection process. Multiple media articles have been published over the last 24 months reporting on new MOOC adoption by various institutions. In addition, public documentation such as institutional web and blog posts were collected for identified sponsoring institutions. The document collection process provided baseline data on the faculty of record and their initial MOOC offerings that, in turn, provided a foundation for additional data collection.

The broad questionnaire provided foundational data on the MOOC development and implementation process, as well as perspectives on impact and implications from the faculty themselves and regarding their institutions.

I constructed the questionnaire to capture personal perspective and narrative regarding each faculty member's personal experience and reflections on their MOOC experience. I intentionally designed all data collection methods sequentially in order to tailor each instrument

towards validation (or dissention) with other data as well as perspectives reported in the media. Generally, the survey asked faculty members questions regarding their expectations, motivations, levels and types of institutional support, and probed overall impressions regarding the future of MOOCs in relation to the strategic goals of the institution. A copy of the full questionnaire instrument can be found in Appendix A.

The follow-up interviews allowed me to probe deeper into their perspectives on their decision-making processes and implementation process, as well as implications on their pedagogical practice. This type of thick qualitative data collected “on the ground” (Merriam, 2009) provided additional insight into motivations, strategic intentions and implications, as identified by faculty. Examples of interview questions include:

- How do you feel MOOCs are or are not different, as an innovation, from existing online learning programs?
- Now that you’ve done this MOOC, who do you talk to about this experience?
 - i.e., Who is your most responsive conversational partner? (For example, is the Dean or Chair interested/engaged?)
- What surprised you the most about your experience with MOOCs?
- What impact has the MOOC experience had on your personal pedagogy within the classroom?

A full copy of the semi-structured interview instrument can be found in Appendix B.

Research Population

To identify potential participants, I utilized web search results and archival listings of MOOCs taught between April 2012 and December 2013 through third party delivery platform

websites. I then researched public contact information for each faculty of record, and contacted them in order to determine participation interest. When building my participant pool I excluded faculties from international institutions, as well as from for-profit institutions, in order to focus on US nonprofit higher education.

Questionnaire participants who self-identified as willing to engage in further interviews were contacted for personal interviews. When building my interview participant pool, I sought to gather a diverse cross-section of faculty from institutions across different Carnegie Classifications types, as well as varying levels of satisfaction with the MOOC experience (based off their questionnaire responses). This deliberate interview participant targeting was an attempt to create as diverse a pool as possible in terms of experience and outcome.

Implications for Practice

Using the framework of Rogers' Theory of Innovation Diffusion, I intended to analyze my research data to create a MOOC integration rubric that charted the decision-making process of early adopters. While Rogers' theory has not been used often to examine educational changes, the dynamically shifting attributes of MOOCs appeared uniquely aligned with its peer network-based framework. At the conclusion of my study I found that while the participants fell within the definition of early adopters, the overall *innovation diffusion* model was no longer applicable to the findings. Instead, I developed a profile of an "innovative pedagogical pioneer" that will be useful in addressing innovation adoption within higher educational structures. Successful innovation adoption involves the acceptance of risk and uncertainty (Robinson, 2009), characteristics which this profile can help determine. The documentation of these early adopter's MOOC experiences, building on emerging research on MOOCs, provides greater insight into

larger innovation adoption practices which can assist institutions that are looking to improve their own innovative practice.

Chapter Two: Literature Review

Introduction

Massive Open Online Courses (MOOCs) are the newest innovation in educational technology that appears to address the access and cost challenges facing higher education. By providing high caliber courses at no cost to any willing participant, proponents of MOOCs predict that the innovation has the potential to radically disrupt the traditional higher education landscape.

Historically, educational innovations are slow to be adopted due to internal resistance, complicated academic approval structures, and bureaucracy. MOOCs, in comparison, have only recently gained attention, yet many universities and colleges are adopting MOOCs into their curriculum even without a clear understanding of best practices for campus integration, policy development, or outcomes. My study compiled data that can be used to assist other institutions in determining their own individual MOOC practices by examining the MOOC innovation through analysis of early discussions, motivations, and decisions.

To best understand the disruptive nature of MOOCs in terms of educational innovation and adoption, I first broadly explore educational innovation in higher education by examining research related to sustainable versus disruptive innovation, as well as barriers to successful innovation adoption. Resistance to educational innovation takes the form of both visible and invisible barriers (Schneckenberg, 2009). Visible barriers are often related to bandwidth and resource issues, such as technology infrastructure, staff training and budget. Invisible barriers often are more difficult to identify and overcome and can include issues of motivation of faculty and staff, distrust in administration driving innovation, or a general lack of interest in the

innovation itself. Next I examine the history and evolution of both distance and online learning, as the open and accessible technological delivery of MOOCs is a key component of the overall innovation.

As there is little empirical research available specific to MOOCs, I discuss research on online learning as it relates to innovating higher education practices in order to draw parallels relating to the current rapid integration of MOOCs. I review the history of online learning and how it has been adopted as an educational innovation. Specifically, how online learning was aimed at improving access for non-traditional learners by offering expanded flexibility in both learning format and delivery model. These changes can be seen in the operational and structural changes implemented in institutions as a result of the addition of online, hybrid and alternative delivery model courses. I then use the previous domains as a frame from which to examine MOOCs as a specific educational innovation and potential disruption.

The blend of alternative (online) delivery, open access and zero cost-to-student combine to create a dynamic innovation, while still undergoing evaluation and potential reinvention. Finally, I examine Everett Rogers' Theory of Innovation Diffusion, which provided the overarching conceptual framework for my study. I use that framework to classify the faculties and institutions involved in the initial wave of MOOC course offerings. Rogers' theory is typically applied to business and marketing innovations, which involve quick start-up cycles and heavy risk – terms not often used regarding higher education. Yet the unique features of MOOCs, the rapidly growing interest of various universities to adopt MOOCs into their curriculum, and the intense market demand for MOOC opportunities provides a closer parallel to business innovation cycles that are not historically associated with higher education.

Sustainable vs. Disruptive Innovation

Innovation is a general term used to describe complex stimuli that can create significant change of practices, processes or products (Christensen & Eyring, 2011; Dodds, 2007; Drucker, 1985; White & Glickman, 2007). Dodds further summarizes three key characteristics that comprise *true* innovation as: useful, dramatically different solutions, and creates or supports positive change once implemented (2007). This type of innovation is also considered to be ‘sustained’ innovation (Christensen & Eyring, 2011)..

The ability to save and automatically sign-in to an email account is one example of a sustainable innovation. The technology provides users an easier way to access their accounts, in addition to potential time savings. When this new technology emerged, it did not necessarily change the way users utilize their email, but it did create a positive experience and improve the login process. Further, the innovation allowed for the market to take advantage of the advance in technology before the underlying demand was known or recognized. In other words, email users were not necessarily clamoring for an easy way to login to their accounts, but once offered, the new and simpler process was readily adopted.

In contrast, some scholars believe that certain types of innovation take a much more active role in the change process, resulting in the creation of lasting operational and structural alterations. Organizational change theory identifies this change as “disruptive innovation” (Christensen & Eyring, 2011). New technology, such as automatic login, can be considered a sustainable innovation as it changed and improved a specific practice upon adoption. But it would not be considered a disruptive innovation because automatic login did not change the fundamental way in which email is used (operational) or how email is sent and received (structural).

Online learning, discussed in more detail later in this chapter, is one recent example of a disruptive innovation. Yet it also is an example of a disruptive innovation that originally entered the market as a sustainable innovation. In the early days of online learning, computers and software were used to deliver what was essentially written materials from existing lectures simply represented in a digital format. As such, online learning was slow to evolve and considered by a majority of scholars to be a suboptimal way for students to learn (Allen & Seaman, 2008; Enarson, 1960; Schneckenberg, 2009). Additionally, at the onset online learning was not viewed as a challenge to the status quo; therefore, there was no motivation or impetus for widespread adoption. Rather, it was viewed as a new delivery model that took advantage of new technologies but did not induce structural change within the higher education system.

Only within the past decade, due to advances in technology, internet access, and personal computing, has online learning achieved widespread acceptance (Allen & Seaman, 2013). Recent growth of fully online programs within traditionally residential institutions has resulted in efforts to adjust operations to accommodate the unique needs of online learners (Van Der Werf & Sabatier, 2009), shore up academic technology, and revise or redesign programmatic pedagogy (de Freitas & Oliver, 2005; Schneckenberg, 2009). Once institutions began implementing comprehensive changes to policy, operations and organizational structures, online learning evolved from a sustained innovation to a disruptive innovation (Christensen & Eyring, 2011).

Disruptive innovations are rare and not always successful (Christensen & Eyring, 2011). Further, disruptive innovations typically require reinvention of existing innovation in order to evolve into a strong disruptive force within the marketplace (Anderson & McGreal, 2012). Disruptive innovation also involves significant risk of failure (Flanagan, 2012), which higher education institutions rarely assume (Enarson, 1960). To fully integrate disruptive innovation,

institutions needs to commit internally to a period of “trial and error” where they allow themselves to test and adjust the innovation to ensure effective and high fidelity implementation (Kinsler, 2007).

MOOCs are one of the newest potential disruptive innovations to emerge in the higher education marketplace. Institutions have begun to utilize MOOCs within their curriculum even without significant research on best practices or successful models (Tilsley, 2013). On some campuses, new positions and departments have been formed to support large-capacity online courses (Kiley, 2013) with some university leaders even going on record touting the potential of this new innovation (Hellweg, 2013). The growing momentum surrounding MOOCs in higher education may predict that a true disruptive innovation is underway.

Organizational Adoption of New Innovation

While not all organizations are innovative organizations, the market pressures to evolve force the education sector to explore new innovation (White & Glickman, 2007). Consistent concerns in higher education grow regarding rising costs, constrained capacity and access issues (Enarson, 1960; Flanagan, 2012; U.S. Department of Education, 2006; Van Der Werf & Sabatier, 2009; White & Glickman, 2007). Even though researchers began the call for “sweeping innovation” and change over fifty years ago (Enarson, 1960), the higher education sector has remained resistant (Dill & Friedman, 1979; U.S. Department of Education, 2006). Large, complex higher education institutions are traditionally not built to foster and integrate innovative change (Dill & Friedman, 1979; Schneckenberg, 2009).

In the past two decades studies, using primarily quantitative data and relying heavily on self-report from organizational leadership, researchers have begun to identify specific

characteristics of innovative organizations.. Organizational characteristics associated with innovation include broad categories such as size, openness, and formalization (Rogers & Rogers, 2003). Although size might suggest organizational complexity and greater resistance to innovation, large universities, in fact, are shown to be more innovative. Additionally, less formalized decision making processes combined with the degree of openness of an organization have been shown to be indicators of an innovative organization.

Research also shows that lack of innovative thinking is not what is holding higher education back, rather real challenges lie in implementation (Dodds, 2007). Further, the inherent risks associated with innovation can create strong manifestations of organizational denial, fear, and resistance. These barriers often can become self-fulfilling prophecies that result in failed innovation (Flanagan, 2012). Successful innovation adoption relies heavily on shared purpose, openness to change, and strong, centralized leadership (Schneckenberg, 2009).

Since previous research has not examined innovation adoption specific to MOOCs, my study provides new data regarding the innovativeness of institutions adopting MOOCs.

Barriers to Innovation Adoption

Barriers to innovation adoption also can range from obvious operational limitations, such as lack of technological support, to subtle structural roadblocks stemming from decades (if not centuries) of academic practice. A 2004 study on the ‘thwarted innovation’ of e-learning examined failed adoption of online learning programs at several institutions across the country. Among the major findings that might explain such failure, researchers noted lack of training in support of a comprehensive online learning platform as well as faculty refusal to alter course content and teaching style (Zemsky & Massy, 2004).

Easily observable (visible) barriers to innovation adoption vary amongst specific universities, but more often than not can be traced back to inadequate technology and budgetary constraints (Kinsler, 2007). Specific research on educational innovation over the last two decades tends to focus primarily on technology. Stumbling blocks to adoption are often attributed to lack of funding for appropriate or necessary technology infrastructure, training, and support staff. Faculty competence and comfort using technology to augment teaching often is noted as a significant deterrent to widespread adoption of technology within higher education (Schneckenberg, 2009). More typically, universities develop small pockets of adoption led by a small number of tech savvy faculty which, in turn, creates an uneven distribution and impact of innovation adoption across the organization.

Furthermore, structural dynamics often create difficult-to-identify (invisible) barriers that inhibit innovation adoption. As noted above, sustainable innovation can often be observed in small pockets of a university, such as in the implementation of a new curriculum or a new process within a specific domain. Dynamic, disruptive innovation often requires change that spans multiple departments and units of a university (Dodds, 2007). Yet in both cases the very nature of higher education – e.g., structures meant to diffuse authority and responsibility across the system -- inherently limits its ability to innovate (Dodds, 2007; Enarson, 1960; Schneckenberg, 2009).

The operational configuration of most higher education institutions is deeply rooted in their common history, or "university DNA" (Christensen & Eyring, 2011). This shared DNA preserves centuries-old structures that grant a high level of autonomy to faculty members from various disciplines that, in turn, is associated with "decentralized decision-making within the institution" (Schneckenberg, 2009, p. 416). Highly decentralized organizations struggle to

maintain shared goals and strategic vision. This struggle sometimes becomes manifest as resistance to change.

The 2006 *Spellings Report*, released by the U.S. Department of Education, blames this resistance on a “mature operating model” that is old-fashioned, inherently risk-adverse and slow to adapt (U.S. Department of Education, 2006; White & Glickman, 2007). Likewise, Karl Weick defined the operational challenge within educational organizations as a result of their being “loosely coupled systems” (1976). Rather than linear hierarchical schemas found in corporations and business, universities tend to create clusters of influence and structure within the larger organization that are only loosely tied to one another. For example, an engineering department of a large university may in itself be able to innovate and successfully adopt a new practices or approach. Yet their strategic vision may be independent or even misaligned with overall university leadership. This loose coupling creates structural barriers to wide-spread innovation by limiting connections between institutional initiatives and organizational practice (Schneckenberg, 2009; Weick, 1976).

Another invisible barrier to innovation adoption lies in the motivation of stakeholders within the system to attempt change, as well as their belief in the “legitimacy” of the innovation (Kinser, 2007). Without true motivation to change, innovation adoption may be “ritualistic or symbolic [in] nature” rather than reflecting authentic engagement by university stakeholders (Schneckenberg, 2009, p. 416). Symbolic adoption of innovation is rarely long lasting, especially during the difficult implementation stage. Decentralized organizations have a “low potential for collective action” thus limiting their ability to engage in innovative practice (Christensen & Eyring, 2011). Regressing to standard, traditional practices or policies is common when stakeholders are unmotivated to sustain change (Christensen & Eyring, 2011; Kinser, 2007).

Higher education leadership plays a critical role in innovation adoption (Flanagan, 2012; Schneckenberg, 2009). For successful innovation, leaders must remain attuned to the marketplace and constantly evaluate their organization's need to evolve (Kirschner, 2012). Leadership must also be highly aware of the visible and invisible barriers that exist within their organizations and maintain a "realistic view" of organizational capacity (Schneckenberg, 2009). In addition, leaders themselves must remain open to new innovation and new ways of operating (Flanagan, 2012). If leaders hold to outdated beliefs about change and innovation, then they are in danger of becoming barriers themselves (Schneckenberg, 2009).

Even with the barriers outlined above, some measure of sustained innovation has been successful in higher education. Overall, the classrooms have evolved to include new technology (such as personal computers, internet, and email) but fundamental expectations for teaching and learning practices have remained the same. New innovations, mostly in technology, have primarily been used to augment and enhance existing practices – not permanently alter existing operations. Christensen argues that a true disruptive innovation, one that results in significant alterations to fundamental structures and practices, has been absent for several decades (2011). It is only through the continued and increased acceptance of online learning that potential for a truly disruptive innovation in higher education has begun to emerge.

History of Distance and Online Learning

Beginning in the mid nineteenth century, institutions seeking to increase access and provide greater flexibility to their students have offered some type of distance education (Carr, 2012; Noble, 2001). Originally referred to as correspondence courses, turn of the century colleges designed distance education courses that could provide increased access to potential

new students without the necessity to attend traditional classes taught on the college campus. This delivery innovation was revolutionary at the time as it provided greatly enhanced access for those outside of an institution's immediate geographic area.

Early correspondence courses – like the ones popularized by University of Chicago beginning in 1892 - relied primarily on communication through the mail and/or using telephonic or audio devices (Hiltz & Turoff, 2005; Matthews, 1999). Some critics argued that these courses were designed solely as a money making enterprise (Noble, 2001) and offered a diminished quality of instruction, while others historians lauded the use of distance learning as a benefit to several distinct populations, such as stay-at-home moms or degree seekers living in rural areas (Matthews, 1999). At the height of their popularity in the 1920s, the ratio of students enrolled in correspondence courses compared to students enrolled in traditional colleges and universities within the US was almost 4:1 (Carr, 2012).

While most early correspondence courses eventually became obsolete, the motivation to explore distance learning continued to grow and evolve. Higher education leaders recognized the need to improve access and expand beyond their current capacity (Hiltz & Turoff, 2005; Matthews, 1999). With distance learning, institutions facing physical space constraints were able to “reach out, offering not seats, but the opportunity to learn” (Matthews, 1999, p. 2). Distance education not only overcomes geographic limitations, but also addresses access concerns by allowing increases in student enrollment without taxing finite physical capacity. In addition, distance education allows institutions the ability to “capitalize on emerging market” trends through creative and flexible curriculum design (Volery & Lord, 2000, p. 216).

As technology progressed, so did the options for delivery at a distance of non-campus student learning. Although online, or e-learning, dates back at least to the late 1980smore steady

adoption by higher education has occurred most heavily over the last twenty years (Hiltz & Turoff, 2005). A noted positive attribute of online learning is the mix the geographic freedom found through distance education combined with the communication benefits found in the use of emerging technology (Hiltz & Turoff, 2005; McMurray, 2007; Noble, 2001). Online learning is often used synonymously with distance learning but is actually a “subset of distance education and embraces a wide set of technology applications and learning processes including, computer-based learning, web-based learning, virtual classrooms, and digital collaborations” (Keengwe & Kidd, 2010, p. 2).

A further delineation that sets online learning apart from distance education is its ability to “allow students to become active learners rather than mere passive recipients of teaching” (Volery & Lord, 2000, p. 217). The kind of technology-mediated delivery found in online learning is ideal for creating a distributed learning model with learning-enhancing features, such as self-pacing, active learner inquiry and peer networking combine to (Garrison & Kanuka, 2004; Volery & Lord, 2000). These benefits also are present in the first generation applications of the MOOC model, including heavy reliance on establishment of active, peer-supported learning communities (Mackness, Mak, & Williams, 2010).

Growth of Online Learning

Unlike the slow exploration of other alternative delivery models throughout most of the twentieth century, online learning evolved fairly rapidly, supported mainly by the growth of personal computing. Institutional early adopters of online learning were further supported by rapid growth and low cost of internet access for the general public. In addition, increased market demand together with rapid advances in technology have pushed colleges and universities still

further in developing new online delivery models (Beaudoin, 2003; Van Der Werf & Sabatier, 2009).

Research conducted by the Sloan Consortium has tracked the “nature and extent of online education” for the past decade (Allen & Seaman, 2013). This annual survey collects data on perceptions about online learning strategies, attitudes, trends, and learning outcomes from over 2,800 academic administrators of US colleges and universities. Each of the past ten reports has noted a marked growth in online learning integration amongst respondents, often to the surprise of the researchers who predicted “an impending plateau” (Allen & Seaman, 2008). When the study began in 2002, approximately 40% of respondents indicated that online education “was critical to their long-term strategy” as an institution (Allen & Seaman, 2013). The most recent report (published in January 2013) found that nearly 70% now report the same level of importance.

Similar gains can be seen in enrollment trends for online courses. In the 2011 national report on online education in the United States, Allen and Seaman noted that enrollment in online courses continues to outpace growth of general higher education at a rate of over 10:1. This pace remained steady in the subsequent reporting periods. Online learning was originally prevalent only in technology disciplines, (e.g., math, science, engineering) (Volery & Lord, 2000). However, researchers now estimate that between 32% to 70% of all students from all disciplines are actively enrolled in one or more online courses (Allen & Seaman, 2013; Van Der Werf & Sabatier, 2009). Therefore, the benefits of online learning appear to be meeting general goals of educators who seek to expand access, improve learning outcomes and decrease the overall cost of higher education (Anderson & McGreal, 2012; Carr, 2012; Van Der Werf & Sabatier, 2009; Volery & Lord, 2000).

Online courses typically offer greater flexibility for students, as they can typically access and complete them wherever and whenever the student desires (Van Der Werf & Sabatier, 2009). Additionally, depending on the course structure, provider institution and format, online classes can cost less than in-classroom courses. Students also report a growing preference for online courses, citing a higher level of learning and time spent engaged with the course materials (Hannay & Newvine, 2006) along with increased interaction with their peers. Researchers cite the ability to engage in both synchronous and asynchronous learning in a virtual context without “being time, place or situation bound” (Garrison & Kanuka, 2004) as a major benefit for many students engaged in online learning.

MOOCs leverage these same online learning benefits but go further, removing the financial and enrollment restrictions from mainstream online courses (J. Johnson, 2012). These factors, combined with the massive size, have upended the online learning model. The rapidly evolving MOOC innovation takes advantage of the growing support for online learning (Carr, 2012), yet challenges institutions to reassess effective online purposes and practices (Ng, 2013).

Adoption Challenges Facing Online Learning

Not all stakeholders within higher education are in agreement regarding the role of online learning in higher education. A recent (2012) national survey of faculty members and administrators gauged the level of support for the continued growth of online learning. Of 6,000 respondents, over 80% of college and university administrators reported a high level of optimism for the role of online learning in higher education in the future, whereas only 42% of faculty felt similarly (Allen, Seaman, Lederman, & Jaschik, 2012). When asked if online education could be

as effective “in helping students learn as in-person instruction” 83.1% of administrators agreed or strongly agreed, whereas only 38.2% of faculty respondents answered positively.

These numbers reflect a growing divide between faculty and administration regarding the importance online learning plays in the evolution of higher education. Yet, with increased pressure on colleges and universities to improve access and lower costs, online learning provides an innovative option to the traditional learning models. Nevertheless, MOOCs take advantage of progress made in acceptance of online learning. In fact, because of MOOCs, many prominent leaders predict a dramatic shift in the fundamental way in which higher education operates (Hellweg, 2013).

MOOCs Evolution from Online Learning

As MOOCs have emerged only over the last 24 months, little empirical research is available. The *Journal of Online Learning and Teaching* published a special issue in Summer 2013 highlighting both new empirical studies as well as new position papers on MOOC issues such as assessment, pedagogy, student satisfaction, and format viability (Siemens, Irvine, & Code, 2013). And subsequently, much has been written about MOOCs both in education industry publications as well as mainstream news media (e.g., *New York Times*, *Wall Street Journal*). Part of the current interest in MOOCs has to do with a public desire for innovation to address the multiple challenges perceived to be facing higher education related to cost, accessibility and value (Anderson & McGreal, 2012; Carr, 2012; J. Johnson, 2012).

To understand the potential impact of MOOCs on higher education, one must first deconstruct the different components that combine to create the innovation. MOOCs are distinguishable by the combination of four distinct characteristics: their size, their cost, the open

accessibility of the courses, and online delivery. The latter two elements, taken individually, are not necessarily innovative. But when combined with the massive size and minimal cost, these factors combine to create a new, potentially disruptive, innovation in higher education.

The exact origin of the MOOC concept remains somewhat unclear. Rather than having a clearly identified conception point, MOOCs appear to have morphed from a combination of different educational experiments over the last few decades. Much of the foundation for the free, open-access course structure is based on Massachusetts Institute of Technology's early experiments with OpenCourseWare ("What You Need to Know About MOOC's," n.d.), which launched in 2002 with the pilot release of fifty online courses open to any interested learner and accessible for free ("Our History: MIT OpenCourseWare," n.d.). Additionally, the University of Manitoba heralds their launch of the first "massive" online course in September of 2008, with 2200 registered participants registered in a course on the theory of Connectivism (Mackness et al., 2010).

Yet most of the MOOC inception lore dates back less than two years and is often focused on former Stanford University professor Sebastian Thrun. Thrun, along with co-professor Peter Norvig, placed their Introduction to Artificial Intelligence course online in the fall of 2011. The course was open-source and anyone interested in participating could enroll for free. Quickly, over 160,000 people enrolled (Carr, 2012; "Massive Open Online Courses (MOOCs)," n.d., "What You Need to Know About MOOC's," n.d.). Shortly after his (admittedly unintentional) massive online teaching experiment, Thrun quit Stanford to start Udacity (Carr, 2012), now one of three leading providers of MOOCs within the online space.

MOOCs Rapid Evolution

Currently three organizations have moved into a leading role in supporting and encouraging development of MOOCs. Thurn's company, Udacity, is headquartered in the Silicon Valley and touts its mission as aiming towards the creation of a "21st-century university" (Carr, 2012, p. 3). As of mid-2014, Udacity offered over 30 courses grounded mainly in the hard sciences like computer programming and (the original) Artificial Intelligence course ("Course Catalog," n.d.). Another leading MOOC provider - and notably the organization most often mentioned in the general press - is Coursera, also located in the Silicon Valley. Coursera was also founded by two former Stanford professors, and is "backed by millions of dollars in venture capital" funding (Carr, 2012, p. 3). Coursera has been the most active of the four providers in developing new content and partnerships, with over 62 university partners (Rivard, 2013a) and over 300 courses ("Courses," n.d.). The only non-profit provider of the three, edX, was founded as a joint project of Massachusetts Institute of Technology and Harvard ("About edX," n.d.). EdX currently lists 183 MOOCs in their catalog, and recently have been focused on increasing international partner institutions (Rivard, 2013a).

The organizational structure and business model of each of the MOOC providers vary greatly, and continues to evolve. Udacity recruits and compensates high-level professors from elite institutions to create new online courses using Thurn's original delivery platform. Coursera is focused on partnership and participant growth. Within the last year they launched an identity verification pilot (Young, 2013a) that charges a small fee to the student in exchange for a "certificate" authenticating their successful completion of a specific course. Coursera also has actively sought partnerships with educational institutions interested in offering credit to MOOC students (Kolowich, 2012c; Lytle, 2012).

There is still much to be determined regarding MOOCs, including what will be a successful business model (two of the top three providers were established as for-profits), copyright and intellectual property issues, and how academic credit and identity verification can occur (Tilsley, 2013). Coursera has recently made attempts to address the latter two issues. In late 2012 and early 2013, Coursera entered into several partnership agreements with various academic institutions willing to offer academic credit (Fain, 2012; Kiley, 2013; Kolowich, 2012c). And in March 2013 they launched an identity verification experiment aimed at providing validated certificates of completion to qualified students (Young, 2013a).

Even with their vast differences in approach, each of the MOOC top providers share a mutual goal of increasing access to high-caliber education on a massive scale (*What Campus Leaders Need to Know About MOOCs*, 2012). Yet with the speed of MOOC evolution, there has been little time to determine best practices and evaluate effectiveness (Tilsley, 2013).

Determining if MOOCs are a Disruptive Innovation

A small sub-group of universities across the United States have begun to experiment with MOOCs. These “early adopters” (Rogers, 1962) of MOOCs have been developing and offering MOOC courses, working to offer credit for MOOC coursework and have used MOOCs within existing on-campus programs (Fain, 2012). These institutions are in the middle of institutionalizing the innovation within their campus, a critical stage to mainstream innovation adoption. In addition, policies and procedures are being put into place that may indicate MOOCs are on the cusp of becoming a disruptive innovation.

As noted earlier, disruptive innovations go further than sustainable innovation to create significant change not just in practice or process, but in entire market systems and operations

(Anderson & McGreal, 2012; Christensen & Eyring, 2011). However, a controversial element of Christensen & Eyring's theory asserts that disruptive innovation takes an existing product/service and provides an alternative that may not necessarily be "as good" but is streamlined to provide a "more affordable and easier to use" option (2011, p. xxiv). Further, while the innovation may enter the market as sub-par, the evolution (or reinvention, discussed earlier) of the innovation can grow to surpass the original product in quality and delivery (Anderson & McGreal, 2012).

The current MOOC model offers a radical solution to geographic constraints and enrollment limitations under which traditional educational systems have operated under for centuries (J. Johnson, 2012; "What You Need to Know About MOOC's," n.d.). But, is dramatically increased enrollment capability enough to create a true disruptive innovation within higher education that changes the way the industry fundamentally operates? Proponents think so, noting that MOOCs have the potential to offer a "low-cost and no-frills model" (Anderson & McGreal, 2012, p. 387) of education to willing students from across the globe.

I focused on examining the adoption practices of early MOOC faculty, in an effort to identify patterns and implications regarding MOOC diffusion and adoption as well as ongoing reinvention – a critical component of the innovation adoption process (Clark, 1968; Rogers & Rogers, 2003). Early adopters play a critical role in the innovation adoption process, as they serve as a testing ground whereby the innovation can be refined and reinvented in order to maximize efficacy and impact (Robinson, 2009).

Using Innovation Diffusion to Examine Adoption Practices

Several theories have developed regarding educational innovation adoption. Leading educational innovation theories include the organic growth model, differentiation model, diffusion model, and the combined-process model (Clark, 1968). Similar across all four models is the variable nature of organizational characteristics such as size, structure, leadership and resource allocation. Existing innovation theories do not attempt to examine how innovative thinking occurs. Instead, educational innovation theories spotlight how innovation is evaluated, and either adopted or rejected, by complex organizations.

Innovation diffusion was originally developed by Rogers (1962) as a framework to track and explain new innovation adoption by individuals and groups. Using the bell curve as a graphic illustration, Rogers placed and classified different types of adopters on the curve, from the inventors (innovators) to the early testers (early adopters), with those that lead mainstream society on one extreme to those who lag behind mainstream adoption practices (laggards) on the other. Using the predictors evident through innovation diffusion, business and enterprise quickly began using the model during the product development phase in order to refine product and communications (Robinson, 2009; Rogers, 1962). Rogers' later research expanded upon his original theory. Rogers and Rogers (2003) asserted that the components, when evaluated as part of a system or process, can act as predictors of the imminent success or failure of an innovation.

Innovation Diffusion Theory outlines a set of sub-stages through which an innovation moves from conceptual idea to an implementation process (Rogers, 1962). Diffusion Theory is grounded in communication, and relies on each adoption group's ability to refine and communicate to the next group (Robinson, 2009). Rogers (1962) theory of innovation diffusion also identified key elements that impact effective diffusion, including the level of product

innovativeness, presence of fluid communication channels, adequate adoption timeline and active peer networks. But, the central component of Roger's diffusion theory is the five step innovation decision process which marks the specific stages early adopters engage in as they evaluate and ultimately disseminate an innovation within their organization. These five steps include: knowledge, persuasion, decision, implementation and confirmation (Rogers, 1962). The actions and decisions undertaken during these five stages form the foundation from which to assess innovation diffusion effectiveness, as well as providing indicators to create predictive patterns (Dooley, 1999). Specific indicators identified during the diffusion process, such as a compressed timeline between stages, can predict future behavior, such as, in this case, a higher probability of successful adoption by other user groups (Sahin, 2006).

An important element that sets innovation diffusion apart from other innovation adoption theories is its reliance on the "reinvention" of the innovation during the adoption process. Other innovation adoption theories examine the process surrounding a fixed innovation. Reinvention recognizes that innovation is a process that can be altered to suit the needs of the adopter to solve a specific problem rather than the adopter altering their behavior to make use of the innovation (R. E. Rice & Rogers, 1980). When examining the potential fluidity and adaptability of an innovation in relation to the specific circumstances of the early adopter, the reinvention occurs when an innovation is influenced by the specific needs of the adopter. Reinvention also recognizes that most innovations are not comprised of a single element. Rather, innovations often involve multiple components that can be unbundled into individual parts, each used to address a specific issue or need (Anderson & McGreal, 2012).

While diffusion of an innovation by an individual relies primarily on their successful completion of the above described stages (Rogers, 1962), Rogers & Rogers' (2003) later work

identified additional independent variables that are predictors specific to an organization's ability to successfully diffuse innovation. These independent variables are categorized into three groups: individual (leader) characteristics, internal organizational structure characteristics, and external characteristics. A challenging aspect of the theory is that often the same characteristics that are positively correlated with successful innovation diffusion (adoption) are negatively correlated with the innovation decision process. For instance, the degree to which an organization is centralized can indicate a low possibility of innovation decision. Yet if an innovation can be socialized, a centralized organization has a higher probability of successful diffusion.

Comparing MOOCs and Innovation Diffusion

Due to the predictive nature of innovation diffusion modeling, the theory is often applied within a business or consumer goods context in order to assist marketers in assessing new product viability. Other fields that utilize innovation diffusion include sociology, public health, geography and anthropology (Dooley, 1999). Little research is available within the past half century that uses the theory to assess educational innovation, especially within the context of higher education. As discussed previously, the use of technology to facilitate online learning is evolving at a rapid rate. Therefore it is no surprise that all the recent studies utilizing innovation diffusion focus on the adoption of a specific technology within an educational context (Sahin & Thompson, 2006).

Specific attributes of MOOCs, including the rapid growth in market awareness, technology-driven delivery and the high caliber institutions (influencers) involved in the early adopter phase, provide a unique framework for this study. Using a consumer marketing lens, the innovation diffusion bell-shaped curve presented an opportunity to explore whether and how

MOOC adoption can be construed as a disruptive educational innovation. Because educational innovation is slow to diffuse (Schneckenberg, 2009), there is an obvious misalignment between typical educational adoption and Innovation Diffusion Theory. Higher education is under tremendous external and internal pressure to address issues of access, cost and value (Flanagan, 2012; U.S. Department of Education, 2006; White & Glickman, 2007) Universities are being urged to forgo antiquated models of innovation in order to resolve issues quickly, and with less impact on student experience (U.S. Department of Education, 2006). MOOCs, on the other hand, appear to be on a growth trajectory that more closely resembles consumer product development than historical educational practice.

Conclusion

Massive Open Online Courses (MOOCs) are a new innovation that have rapidly emerged onto the educational scene over the last 24 months (J. Johnson, 2012; “What You Need to Know About MOOC’s,” n.d.). MOOCs use of online technology as a delivery model is not necessarily unique, but their open-access and massive size – all for free – combine to create a distinctive new educational innovation. Supporters of MOOCs anticipate that this new innovation could significantly increase access to high-caliber learning, as well as unsettling the entire antiquated structure of higher education. Yet there are still a host of unknowns regarding the impact of this educational innovation, due in part to the rapid rise of awareness. Change experts Christensen & Eyring identified two distinct types of innovation; sustained and disruptive innovation (2011). Disruptive innovation is also not often successful, especially in education, as it requires a large amount of organizational risk – which is uncommon for educational institutions to endure (Flanagan, 2012).

How MOOCs will ultimately be classified remains to be seen. The innovation is new and relatively untested, with little empirical research available. However dozens of universities are implementing MOOCs without comprehensive data regarding the potential impact on their campus, academic learning and the higher education industry in general. The present study examined the early adoption processes and perspectives as experienced by the initial faculty members who developed and taught MOOCs. As MOOCs have only recently entered the educational landscape, my study sheds additional light on the expectations and anticipated trajectory of MOOCs as a potential disruptive innovation in higher education.

Chapter Three: Design and Methodology

Due to the rapid explosion of MOOCs as a large-scale, open-access innovation onto the higher education landscape, there is still only a modest (but burgeoning) amount of research or agreement regarding the potential impact of MOOCs. Even without this research, a growing number of institutions have accelerated their normal innovation adoption practices and rushed to integrate MOOCs. Such rapid adoption is highly unusual for higher education institutions (Enarson, 1960).

This project investigated how faculty at various higher education institutions, who were early adopters of MOOCs perceived motivation, benefits and challenges, and longer-term implications with respect to MOOCs as an educational innovations. Everett Rogers' innovation diffusion model (Rogers & Rogers, 2003; Rogers, 1962) underpins the study.

I used the early adopter model, a component of Innovation Diffusion theory, to frame initial identification and classification of MOOC implementation at various colleges and universities within the United States. Innovation Diffusion theory is most often applied within business and industry to track and predict product adoption amongst specific market segments (Robinson, 2009). Yet the unique features of MOOCs, the rapidly growing interest of various universities to adopt MOOCs into their curriculum, and the intense market demand for MOOC opportunities provided a closer parallel to business innovation cycles that are not historically associated with higher education.

As one of the first comprehensive research studies on MOOCs, this project documented the early adoption phase of MOOCs within higher education through the perspective and experiences of the initial faculty who developed and implemented MOOCs. This data provided a

rich narrative of the early adoption processes, as well as potential implications of MOOCs as an educational innovation in higher education. With this type of additional data, academic leaders can further identify patterns, predictors and/or draw conclusions that will help institutions anticipate how MOOCs may impact higher education. Using qualitative methods, I collected and analyzed data from the faculty who chose to experiment with MOOCs during the initial stage (identified as the early adoption stage) of innovation development.

Through this process, I explored the following research questions:

1. What motivations and influences drove the early adoption of MOOC development and implementation, as reported by MOOC early adopters?
2. What were the benefits and challenges of being early adopters, as reported by MOOC early adopters?
3. What have been the impact and/or implications on the institution of being a MOOC innovation early adopter, as reported by MOOC early adopters?
4. What is the perceived future of MOOCs as an educational innovation in higher education, as reported by MOOC early adopters?

The higher education industry continues to speculate on the potential future and impact of MOOCs within education. My study documented the earliest phase of this process, from April 2012 to December 2013. A key component of my research was gathering first-hand narratives regarding motivation, decision-making and potential implications as reported by the faculty who implemented MOOCs in some capacity on their campus. As illustrated within the research questions, my study sought to document the initial impetus, influence(r)s and implications of MOOCs on faculty and institutions during this early MOOC adoption cycle.

Research Design

My study was a qualitative study, comprised of document review, a descriptive questionnaire, and individual participant interviews. This qualitative design was most appropriate to address my research question because it allowed me to richly document how different kinds of institutions and different participating faculty members made decisions with respect to implementing MOOCs. Yin (1984) notes the most appropriate use of qualitative methods is to “investigate a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used” (p. 23).

By using multiple data collection methods within my study I was able to closely study the MOOC phenomenon from the personal perspectives of *on the ground* decision makers and implementers from within multiple institutions. According to Yin (1984), exploratory multiple qualitative methods are best used when there is little preliminary data or observable behavior associated with the phenomenon and the researcher must rely on participant narrative. Additionally, qualitative methodology allows for the detailed examination of a specific event or phenomenon from multiple personal perspectives and is best to illuminate larger issues with an “end product [that is] richly descriptive” (Merriam, 2009, p. 39). The end goal of my study was to describe and document in detail the fast-moving, early stages of MOOC integration within higher education, which complements Yin and Merriam’s rationale regarding the optimal use of qualitative methodology. By using qualitative methodology I was able to directly capture narrative regarding the evolution of MOOCs as personally experienced by faculty members directly involved in MOOC development, implementation and adoption.

Qualitative methodology is noted to be best for “how” and “why” investigation (Yin, 2002). Thus it was an appropriate fit for my research questions, which sought to determine the implementation (how) and motivation (why), as well as future implications of MOOCs as an educational innovation. According to Yin, qualitative methodology is best used within research contexts where the phenomenon is focused on contemporary events (as opposed to historical) and where researcher has no direct control or influence over the events (Yin, 2002). MOOCs represent a fast-developing, current problem facing higher education where institutions are moving forward with adoption at an accelerated speed. As researcher, my study examined the phenomenon as it developed, with no “control” over the participant’s behavior.

Marketing researchers Aaker, Day and Kumar (2009) noted that the foundation of strong qualitative research is the combination of comprehensive narrative, in-depth interviews and comprehensive document review. These various qualitative methods will help avoid researcher bias and allow for a greater validation of findings, discussed more thoroughly later in this chapter, through the use of multiple sources and perspectives.

A qualitative approach also was most appropriate because the combination of descriptive survey data, along with the perspectives gathered from individual interviews and document review, allowed for the clearer identification of patterns in adoption, integration and behavior. This type of design is recognized for use in studying new or little-researched problems, allowing for “multiple viewpoints, perspectives, positions, and standpoints” (R. B. Johnson et al., 2007, p. 114). As MOOCs represent a burgeoning innovation within higher education, there appears little agreement on the beneficial application within institutions (Azevedo, 2012; Fain, 2012; Kolowich, 2012a). By using a qualitative approach, I was able to compare the varied

perspectives on the processes involved with MOOC integration in order to identify themes and/or patterns that are not always overt during the early adoption stage.

Research Methods

My study focused on gathering the personal narratives of early adopter faculty members, through a document review, a descriptive questionnaire and follow-up interviews. I reviewed public documents to establish baseline assumptions regarding the MOOC integration activities and potential strategic objectives of involved institutions. This aggregated data helped inform my development of the descriptive questionnaire protocol and pre-testing. I then conducted follow-up personal interviews, which provided deeper reflections on the MOOC adoption process and potential institutional and educational implications, as identified by faculty.

I developed a semi-structured interview protocol after initial analysis of descriptive questionnaires and document review, and each individual interview protocol was partially customized by participant using their questionnaire responses. This sequential research design process was intentional in order to allow for specificity in the interview protocol, based on specifics within the data gathered through earlier methods. Using this sequential process, emergent themes that surfaced through the descriptive questionnaire were able to be tested against more specific faculty interview responses as a means for obtaining further validation (or dissent) regarding emergent findings. Because the questionnaire was disseminated to as large of an audience as possible, an online descriptive questionnaire was the most appropriate method to collect this type of broadly sampled, large scale baseline information in a confidential and detailed manner.

Participant Selection

The ability to identify an initial pool of potential participants was challenging, given that MOOCs are still very new within higher education. I established the study timeframe guided by Rogers early adoption framework (Rogers, 1962). Specifically, I chose April 2012 as the starting point based on the spike in media reports regarding MOOCs which appeared to indicate early awareness within higher education and the inception of several third-party delivery platforms. I then expanded the research timeframe to encompass nearly two more years of MOOC development (ending in December 2013). While the exact early adoption phase will only be clearly identifiable in retrospect, I am confident that the study timeframe constitutes an appropriate and valid representation of the MOOC early adoption stage.

I also reviewed extensive public records of MOOC courses offered during the predetermined timeframe using website archives and course catalogs. The initial pool of institutions eligible for the study included a mix of large and small, public and private, institutions. This heterogeneous pooling was purposeful to allow for future examination of trends that might bridge across types of institutions. I purposely chose to limit the study to include only US-based non-profit institutions. Currently the for-profit sector is facing increasing scrutiny, which could have negatively impact the validity of the study (Stratford, 2012).

Participant Access and Recruitment

As a qualitative study, my research focused primarily on faculty stakeholders and their practices relating to MOOC decision making and adoption. That said, MOOCs were evolving so rapidly that initial review of adoption processes did not appear to mimic the more traditional, bottom-up processes familiar within higher education. To establish the eligible participant pool, I

researched contact information for all faculty members of record for the 250 courses which resulted in a final list of 326 potential participants.

Since only institutions that have publically acknowledged their active adoption of MOOCs were included, the sample excluded any institution that is privately exploring MOOCs within their campus. While new institutions are reported to begin engagement in MOOCs almost weekly (“What You Need to Know About MOOC’s,” n.d.), there were approximately 59 institutions offering around 250 courses that matched the previously stated criteria.

Email inquiries were sent to 326 faculty members that identified the criteria from which they were selected, and invited their participation the study through completion of the attached online questionnaire. Five emails were returned due to inactive accounts, resulting in 321 potential participants. Eighty-two respondents started the questionnaire, for a response rate of 25.5% and a completion rate of 86.5% (n=71). At the conclusion of the questionnaire, respondents were asked if they were willing to participate in a follow-up interview. Forty five participants indicated a willingness to engage further in the research. Each volunteer participant’s questionnaire responses were loosely evaluated to identify positive, neutral or negative overall MOOC experiences. I then randomly selected five individuals from each category, who subsequently were contacted to initiate follow-up interviews. Ultimately, I conducted eight follow-up interviews with volunteer participants on the telephone or via Skype.

Data Collection and Analysis

As stated, the study used data collected through a combination of public document review and analysis, descriptive questionnaire responses and semi-structured interviews with faculty who self-identified as willing to participate in further research engagement. Questionnaire and

interview questions were aimed at documenting behaviors, perspectives and personal narratives on the MOOC experience that each faculty and their institution underwent (and in some cases, were still undergoing) during the identified early phase of MOOCs adoption. My additional method - document review - was used both to help identify participants, as well as support the primary research data gathered through the questionnaire and individual interviews.

Research began with a review of public documents regarding MOOCs offered between April 2012 and December 2013. These data were culled primarily from third party provider website archives and web searches. I captured data regarding course topic, date(s) offered, faculty of record, and delivery platform.

Next, as described above, I administered an online descriptive questionnaire designed for faculty members who had developed and/or taught a MOOC during the study timeframe. I designed the questionnaire, following the document review, to build upon any specific themes that emerged during the review process. I designed questions to probe motivating factors, benefits and challenges, the nature of institutional engagement, faculty members' perspectives on the MOOC experience, as well as their general impressions regarding future implications of MOOCs on pedagogy and higher education. Because I designed this instrument to capture and document the narrative of early adopters, the goal was to invite reflective narrative and personal opinions of the key constituents, not necessarily an objective "truth". Arguably, these perceptions represent an important reality to the actors involved and need to be considered in any full account of the MOOC innovation.

I administered the questionnaire online using Survey Monkey. I decided to use an online survey instrument due to the ease of formatting, as well as the ability to include skip-logic on certain questions, based on participant's specific responses. The questionnaire asked participants

general questions about their years teaching at their current institution, but no other identifying features (such as institution, department, program, etc.) were required in order to best protect the identity of participants. The complete questionnaire instrument can be found in Appendix A.

Next, following initial analysis, I conducted semi-structured personal interviews with participants who self-identified their interest in participating in a follow-up interview. Each interview was designed to last approximately 30-45 minutes, depending on the willingness of the participant to expand on their responses. I conducted the interviews either telephonically or via Skype, depending on the participant's preference. I audio recorded all interviews, with permission from the participant, using an iPhone audio recorder and had the audio recordings transcribed by an outside vendor.

Because of the rapid adoption timeline, interviews were semi-structured to allow inclusion of specifics from each interviewee's personal as well as questionnaire responses. This allowed me the opportunity to capture a more specific, richly detailed narrative regarding their personal experiences and impressions. Additionally, I intentionally tied interview questions to the preliminary themes that emerged from the questionnaire data, such as further inquiry on motivation, institutional impact and pedagogical implications. An example of the semi-structured interview protocol can be found in Appendix B.

The analysis of the data took place in six phases:

1. Document data coding
2. Coding of aggregated questionnaires to identify common themes (general)
3. Review and coding of specific narrative responses by interviews candidate
4. Coding of interview data to identify common themes (general)

5. Comparison of interview and questionnaire data to identify commonality and differences by institution
6. Triangulation of document review, interview and questionnaire data
7. Comparison of aggregated survey and interview data compared to stages of innovation diffusion, as identified by Everett Rogers (1962)

I reviewed and coded document data for general themes associated with MOOC early adoption and integration practices, as seen in early literature and articles. The majority of data was culled from public reports and articles, therefore findings were general and non-specific. I utilized mainly website achieves and media articles from online industry publications for the majority of this review. The collected data, sorted by MOOC course and institution, provided baseline outlines of MOOC activities and practices. This information also provided a framework of published MOOC practices that was used to inform the questionnaire and interview protocol.

No personal identifying information was gathered from survey participants, outside of their years teaching and type of institution. Some specific identifying information was revealed by participants in the course of their narrative responses, but each response was tagged with a code relating to the type of institution for clarity of reporting only. In addition, individual subjects who participated in follow-up interviews were assigned a pseudonym in place of their name in all documentation, including transcripts.

I reviewed the questionnaire responses and interview transcripts and coded them based on research question topics. Specifically, this coding process sought particularly to identify themes regarding motivation, benefits and challenges, implications, and predictions regarding the future of MOOCs. An additional coding of all transcripts and responses sought to identify additional themes that fell outside each research question. Some anticipated emergent themes related to

institutional reorganization due to MOOC adoption, unanticipated benefits or challenges faced during adoption, as well as mid-stream changes made to integration due to the technology refinement. Data were examined for comparable and outlier themes within single site locations, as well as across multiple sites.

Finally, I compared the coded data against Rogers' five stages of innovation diffusion. Rogers' theory, which has traditionally been used to illustrate and predict product adoption into mainstream culture, depicts five unique stages essential to innovation diffusion: knowledge, persuasion, decision, implementation and confirmation (Rogers, 1962). My original intent was to use this framework to sort findings into appropriate stages of innovation diffusion to reveal any patterns or predictive models that could be used by institutions to assist with future MOOC adoption. After I completed data collection and initial coding it became apparent that while characteristics of early adoption still matched initial MOOC experiences, the overall *innovation diffusion* model no longer appeared suitable for further analysis of the MOOC phenomenon.

Ethical Considerations

Participants in this research project were not asked to provide private, privileged or proprietary information. To encourage candid participation, I underscored that the focus of my research was on MOOCs as an educational innovation. More specifically, the research was focused on examining (using MOOCs as an example) how disruptive innovations are started, developed and adopted within higher education. The goals of the study were not to glean specific, forward-looking activities or strategies, rather to collect retrospective data on immediate past behaviors and perspectives. Data collected was aggregated to examine innovation adoption strategies and perspectives from multiple perspectives. Participants were able to benefit from

their involvement in this research not only by being identified as trailblazers in innovation adoption, but by providing data that can be shared to benefit other institutions regarding the innovation diffusion process.

Credibility and Validity

Potential threats to validity resided mainly within the interaction of the researcher and participants. Specific threats to internal validity include the possibility of researcher bias, reactivity and lack of generalizability. These threats were offset by sound research practices during the course of the study including triangulated data sources, thorough documentation, and disclosure during the research process, as well as the use of multiple perspectives.

The primary way I sought to increase the validity of my findings was through the triangulation of document review, questionnaire data and individual interviews. A key component of my research design was the use of a semi-structured interview protocol, informed by and built following, the conclusion of questionnaire. This specific approach allowed me to corroborate (or disprove) the initial findings gathered through earlier methods. Additional processes built into the research design to mitigate threats to validity are as follows:

Researcher Bias

To reduce research bias I engaged outside assistance to review all coded transcripts for consistent interpretation. An impartial research analyst reviewed all of the coded groups and initial thematic summaries to determine consistent meaning making from the data. I also examined the data for alternative hypothesis within the research beyond my initial impressions and analysis, and remained committed to coding through a neutral lens. Prior to coding, I pre-tested my questionnaire to identify any unclear, leading or coercive questions. Interview protocol

was pretested through cognitive interviews with both academic mentors and non-participant university faculty.

Reactivity

While the bulk of data collection relied on comprehensive narrative data gathered through an online questionnaire, additional data collection methods were also used. In an effort to offset the potential research bias, I sought to triangulate data by using pre-survey instruments in combination with individual interviews. This helped provide multiple data points that detailed the perceptions and perspectives on the MOOC adoption process. Comprehensive reporting, consisting of organized documentation of all interviews and conversations, also helped decrease threats to validity. In addition, my questionnaire and interview protocol were pre-tested several times to identify and weed out potentially biased or nebulous questions.

Generalizability

The choice of descriptive qualitative design provided the ability to gather thick narrative data through systematic and thorough data gathering. The expansion of the research to encompass additional follow-up interviews allowed for the ability to compare and contrast data. All participants were chosen based on their involvement in similar classification of MOOC adoption, thus increasing the chances that the results will be similar in nature. All interviews followed a semi-structured protocol and involved faculty/instructor participants from different institutions. This replication model helped decrease threats to external validity by increasing the likelihood that results could be generalized across more than a single instance.

Design Summary

In summary, the research project sought to document and examine motivations and explore implications of MOOCs as experienced by early adopter faculty members who developed and taught MOOCs during an initial stage of development. While the questionnaire data were collected concurrently, the interview instrument was developed after the completion of the online questionnaire. Application of a sequential data gathering design allowed for preliminary themes and key indicators from questionnaires to be further tested against the perspectives expressed in interviews by participating faculty members. The next chapter discusses the specific findings and implications uncovered through this study.

Chapter Four: Findings

Introduction

This study examined the motivations, implications and future potential of MOOCs (massive open online courses) as experienced by early adopter faculty. Early adopters were defined as faculty members from US institutions who developed and taught a MOOC to the public during a twenty month period chosen to represent an initial phase of MOOCs.

Beginning in the middle of 2012, MOOCs gained rapid public notoriety as a potential educational innovation, and several third party platforms emerged to facilitate MOOCs to the masses. The time period for this study corresponded with increased reports regarding MOOCs as well as the inception month/year of the largest MOOC provider (Coursera) as a beginning time marker, running through the month prior to the beginning of this research project (December 2013).

This study examined the following research questions:

1. What motivations and influences drove the early adoption of MOOC development and implementation, as reported by MOOC early adopters?
2. What were the benefits and challenges of being early adopters, as reported by MOOC early adopters?
3. What have been the impact and/or implications on the institution of being a MOOC innovation early adopter, as reported by MOOC early adopters?

4. What is the perceived future of MOOCs as an educational innovation in higher education, as reported by MOOC early adopters?

To address these questions, I surveyed and interviewed professors listed as the instructor of record for MOOCs offered between April 2012 and December 2013 on Coursera, EdX or Udacity. In addition to being a faculty of record, the participant pool included only professors based at accredited, non-profit higher education institutions located within the United States.

Three hundred and twenty six questionnaires were sent to individuals listed as an instructor of record for over 250 MOOCs. Contact information for the participant pool was gathered from institutional websites and public faculty profiles. Five emails were returned due to inactive accounts, resulting in 321 potential participants. The online questionnaire was open for four weeks. Eighty-two participants started the survey, for a response rate of 25.5% and a completion rate of 86.5% (n=71).

Respondents¹ indicated at the conclusion of the questionnaire their willingness to consider further participation in follow-up interviews. Fifteen respondents were invited to participate in a follow-up telephonic interview and nine interviews were conducted approximately three weeks following the completion of the online questionnaire.

Demographics

Neither within the online questionnaire or interview were the participants asked specific demographic data nor required to identify their home institution. This was deliberate in order to

¹ Individuals who only responded to the questionnaire are referred to as “respondent” throughout this document. Individuals who responded to the questionnaire and also consented to an interview are referred to as “interviewee” or “professor”. The terms “participant” and “instructor” are used in reference to either group of individuals only when distinction is not necessary to uphold the integrity of the data.

protect the identity of the participants given the high publicity around MOOCs and relatively small sample size. Some institutional identities were voluntarily provided by participants as part of their narrative responses. In these instances, the institutional identifiers were altered and pseudonyms were assigned to protect the identity of the instructors and their institution. All institutional identifiers were stripped back to only reflect educational segment generalities.

Participants were asked specific questions regarding their years teaching both at their current institution, and within certain segments relating to online learning. Over 30% of respondents (n=76) had taught at their current institution for over 21 years. While some participants indicated having little to no previous online teaching experience, the majority had been using technology in the classroom and/or developing online courses for several years prior to their MOOC experience.

RQ1; What motivating and influencing factors drove the early adoption of MOOC development and implementation, as reported by MOOC early adopters?

MOOC early adopters² reported their personal motivation and influencing factors to try MOOCs was a combination of both internal and external stimuli. Internal motivators included an interest in experimenting with an emerging educational innovation, as well as a personal desire to expand their "reach" as an educator. External influence was identified in the form of encouragement from institutional administration and other academic colleagues. Further, this encouragement from administration to try MOOCs was perceived (by the early adopters) to stem from an institutional desire to increase recognition of the institution and/or gain publicity. Early

² The term "early adopter" is used as an umbrella term when generalizing findings.

adopters shared an interest in increasing the reputation of the institution, in addition to an individual drive to expand their personal reputation as an educator.

Direct encouragement of administration and academic colleagues was a leading source of influence for early adopters. Only moderate to low influence was derived through exposure to various media sources and outside funding organizations. One professor from a large public eastern university played a leading role in the socialization of MOOCs within his large, public institution. He broke down the institutional motivation of his institution to try MOOCs into five distinct areas of influence:

I was actually the person spearheading the MOOC initiative, sofundamentally, the motivations were (i) good press for being innovative, (ii) legislative interest in innovation, (iii) chance to enhance the institutional brand, (iv) means to raise the profile and investment in technology supporting units, (v) chance to re-use material on campus developed for online delivery.

These areas of influence were generally consistent with the broader findings, which showed that early adopters identified various combinations of motivating and influencing factors on their decision to develop/teach MOOCs.

Experimentation

The data indicated that most participants were intrinsically motivated to try MOOCs by a personal desire to experiment. Participants specifically noted this intent to "experiment" and their perspective that MOOCs were an innovation they felt "needed to be explored." Several instructors saw MOOCs as an "adventure" and as such felt willing to accept any accompanying risks associated with the unknown outcome. The ability to tolerate uncertainty and risk is a key characteristic of early adopters (Rogers & Rogers, 2003).

One respondent, from a large ivy-league institution, characterized his motivation to get involved in MOOCs as a tangible way to see for himself what the chatter was all about. "[I] didn't believe the hype, which is why I wanted to try teaching one myself." This desire to explore for oneself the growing hype and "chatter" around MOOCs was prevalent in the data.

Another indicator that early adopters were comfortable experimenting was the reported lack of expectations regarding either the experience or the outcome(s). "I did not have a lot of expectations - viewed it as an experimental learning experience" stated one respondent. "[I had] few expectations." In other cases, motivation rooted in experimentation could be seen as curiosity, as they tried to determine what place MOOCs might have in the higher educational landscape. "My first impression was cautious curiosity ... what were these things?? Why were people doing this? I was intrigued, but not sure where MOOCs were going" said another participant.

During a follow-up interview, a professor from a medium-sized, private university expanded upon her motivation to experiment with a new educational innovation:

I am very interested in how education's changing. I'm interested in thinking about the classroom differently, so this seemed like a good opportunity to, I would say, create my own opinion about MOOCs. A lot of people have opinions about them. I didn't really have an opinion because I hadn't had the experience, didn't understand what the community would be like, what the experience would be like, what it would be like to put the materials together, with students you would never see. I have never done an online course before. It was new in many ways to me.

Participants entered into MOOCs with varying levels of online teaching experience, yet their level of online teaching experience did not appear to factor into their decision to try MOOCs. Rather, their natural curiosity regarding the innovation, and what implications it might have for education, spurred their decisions.

Separate from online teaching experience was the possible influence of existing online materials on a participant's decision to try MOOCs. While only 34.7% of respondents (n=75) ranked "able to use an existing online course already developed with little modifications" as a primary motivation for developing MOOCs, some found the preexistence of course material an advantage to experimentation. One professor, who has taught at his large, state university for almost ten years, found the transition from existing course material to MOOC material relatively easy. "Seemed like an interesting idea.....I already had most of the course assets and it seemed like a good opportunity to share those with larger audience."

Another respondent from a medium sized elite institution noted "I had few expectations. [My existing] course was mature and well developed and we simply offered it as a MOOC with the goal of seeing how it would go." One professor, from a large state institution, indicated that he was willing to try a MOOC "simply because the course already existed.....[administration] asked if they could take my course online before I retired....and then they said, 'How about doing it as a MOOC'" and I didn't know much about them, but I was fine with that." While the data did not indicate that having existing online courses motivated participants, this factor appeared to make the decision-making process easier for some instructors.

Personal Reach

Potential benefits of the "massive" and "open" elements of MOOCs were another motivating factor identified by early adopters. Instructors recognized the ability of MOOCs to provide exposure to their courses to a larger number of students outside the "walls" of their home campus (massive), as well as a large number of geographically disbursed learners (open). "[MOOCs had the] possibility of reaching (and harnessing) a very large community of students"

noted one respondent. Stated another, “[MOOCs can] reach individuals who might not otherwise have access to courses at my institution.”

While the delivery modality (online) was not necessarily new or innovative, early adopters were intrigued by the idea that the MOOC format would allow their academic content to be shared with a significantly broader audience of learners than they typically interacted with. One respondent felt MOOCs represented “a new way to use technology to reach a large number of students.” Another instructor expanded upon the difference between MOOCs and existing online educational content, “free online teaching materials have been around for a long time, but what was exciting about MOOCs was the ability to engage a large virtual classroom of students in a full course”. Many instructors wanted to see for themselves what it was like reaching out to a significantly broader audience than they currently taught.

While mostly curious about the format and interested in expanding their reach, some educators still held reservations about how MOOCs would function. A small number of respondents noted their reservations about the academic functionality of MOOCs, yet felt compelled to try them anyway. “[MOOCs are] unlikely to replace traditional instruction, but an intriguing way to reach large populations” stated one respondent. Another professor from a medium sized private university saw an opportunity to explore teaching to a broad audience, but did not believe MOOCs would replace the traditional classroom. She expanded on this, stating “[MOOCs had] good potential as a complement to, not substitute for, in-classroom teaching. They could be a nice way to deliver a public good to broader audience from my elite institution.”

One interviewee, who teaches at the same small private institution as another professor interviewed in this study (but who developed/taught a different course,) had a personal interest in

expanding the reach of his course. Yet he also held some reservations regarding how to use peer evaluation in order to measure student success. “My first impression was mixed. Although I was excited at the prospect of reaching a large number of students, I was skeptical about [using peer] evaluation and [peer] assessment of student work.” To avoid this concern, yet still experiment with MOOCs, he instead developed brand new quiz and assessment tools in order to evaluate student learning.

For most participants, interest in teaching an extremely large virtual classroom of learners outweighed any initial reservations. At the time these early adopters were exploring MOOCs, the mainstream and educational media were regularly reporting courses with initial enrollment of over 100,000 students (Lewin, 2012a; Perna et al., 2013). One respondent noted the potential of this dramatically large student enrollment when reflecting on his motivation to try MOOCs: “I thought it would have a massive enrollment (~100K) and would lead to greater exposure globally for me as an educator and scholar and my ideas.”

In a follow-up interview, a soon-retiring professor from prestigious medium size university expanded upon the sizable difference in student enrollment of MOOCs versus typical classrooms.

In one [of my MOOCs] there were about 12,000 students who enrolled and about something like 2000 who were, who finished, now my metric for finishing means practice in the last week of the course...not necessarily giving a certificate, but active on the last week of the course. And the largest on the ground courses ever taught? It would have been 50 students who enrolled. So it's much, much bigger, I mean even if you say, well forget the 12,000 just the 2,000, gee that's about 40 years of courses.

The ability to teach, in a single course cycle, to an audience larger than all his courses throughout his career added together, had an enormous impact on this professor. He later added that while he would still retire as planned, he was open to continuing teaching “a MOOC or two” while retired.

Beyond the possibilities of considerably larger classrooms, faculty also found motivation in the potential MOOCs appeared to have to improve overall access to education around the world. A respondent teaching at a large state university drew parallels between the potential of MOOCs, and the early days of the internet. “I was intrigued by the intention to "democratize" access to higher education for people across the globe. It reminded me a little of the good old days of the Web, when everyone talked about how it would foster a more engaged citizenry, better distribution of knowledge, etc.”

The perceived ability to “open” their classroom to students from a variety of geographic and demographic backgrounds was motivating for many participants, especially those who had confidence in the quality and value of their academic materials. When reflecting on his motivation, a respondent noted his personal interest in exploring how his existing course might translate to a broader, international audience. “[I wanted to] see the impact of the material in a global setting. I knew it could have a big impact based on my face-to-face and standard online teaching of the same material. I wanted to see what would happen with multiple cultures, countries, and so on.”

As previously stated, while the existence of course material was not ranked high as a primary motivation for early adopters, it was still a noted factor in their decision to try MOOCs. One respondent noted that the MOOC was “a natural extension of my current teaching since all of my classes are already online; just a way to make the content more accessible to a wider audience.” Another reflected “I already had most of the course assets and it seemed like a good opportunity to share those with larger audience.”

Administrative Influence

When specifically asked to identify areas of influence, 73.6% of respondents (n=77) indicated that their decision to become an early adopter was “somewhat to very” influenced by administrative/institutional leadership. Academic colleagues had similar levels of influence on 75% of respondents. Further, 64.4% of respondents (n=74) indicated that their home institution was “highly involved - they encouraged and funded MOOC development.” MOOC early adopters reported various forms of influence by administration, including direct encouragement, funding support, release time, and public institutional endorsement.

Participants reported being directly approached or solicited by university administration and encouraged to develop/teach a MOOC. One instructor, for example, felt his existing content was appropriate for the MOOC format, but was also directly approached by leadership and encouraged to participate. “I had experience teaching the course and thought it would be suitable for the medium. To be fair, the offer from administrators to develop a MOOC was for this course based on my record teaching it on campus.”

Another interviewee did not have pre-existing content applicable for online use, but felt motivated by the enthusiasm of her university’s administration. More specifically, she felt inspired by her university president, who actually “ran a course himself” in addition to encouraging other faculty members on campus to become early adopters.

The president had come upon this opportunity to potentially partner with Coursera. At the time, and of course this has completely changed now, there were no liberal arts schools that were associated with Coursera. This was an opportunity to ...have different kinds of schools in the endeavor. He held of couple of meetings with people who he thought might be interested, or had courses in different areas that were popular on campus, those kinds of things. We just started to discuss the possibility. There was no arm-twisting by any stretch of the imagination. It was definitely presented as an opportunity.

The president's encouragement and willingness to engage personally in the MOOC development process signaled to the professor that this was an opportunity worth considering. His enthusiasm for the potential was "contagious" and created a positive environment from which to consider MOOCs.

Other participants also noted high levels of interest from their administration as a motivator. A professor who teaches at a prestigious medium-sized private institution was motivated by the energy around MOOCs by administration, and the potential benefits reaped from leveraging the resources being offered to early adopters: "They [administration] are very supportive....Because they really felt that it's an experimental platform and that it may prove to be very, very useful....By providing the funds to hire this TA to go ahead and actually do this video, the filming and the editing for us, that gave us the wherewithal."

Some faculty were directly encouraged by administration to create MOOC content in order to help meet a specific institutional need, as well as opening up content for mass distribution through the MOOC platform. An interviewee, who was the only participant from a community college, reported direct influence from his Dean and other departmental faculty members as they explored options to create access to developmental materials for current community college students.

Really what motivated us was English faculty and our Dean. She's been the biggest proponent of online education/distance education for a long time here in California. [We were motivated through] part of conversation my dean had with the CA governor's staff and community college chancellor's office. Also, we thought that a basic grammar review would be helpful to community college students and really anyone who wanted to improve their basic writing skills. We needed a way for students to be able to do some review and then retake the placement test without having to take a full blown college credit course. We were surprised that so many people across the world signed up. They wanted to learn English, and many also wanted to become a better writer.

This college, and the faculty involved in the MOOC exploration, identified on the outset what issues they hoped to address with MOOCs. They then sought to address these specific issues by creating new mini-courses, and opened them up to a wider audience as MOOCs.

In addition to direct influence from administrative leadership, such as Deans, Provosts, Presidents and Boards, respondents were also recruited by existing university departments that focused on online learning and/or innovative teaching practices. A respondent noted that he “was approached by our distance education people because they know my interest in online learning which I have been doing for 18 years.” Another instructor was directly approached by his mid-sized private institution’s Center for Teaching and Learning due to the popularity of his on-the-ground course.

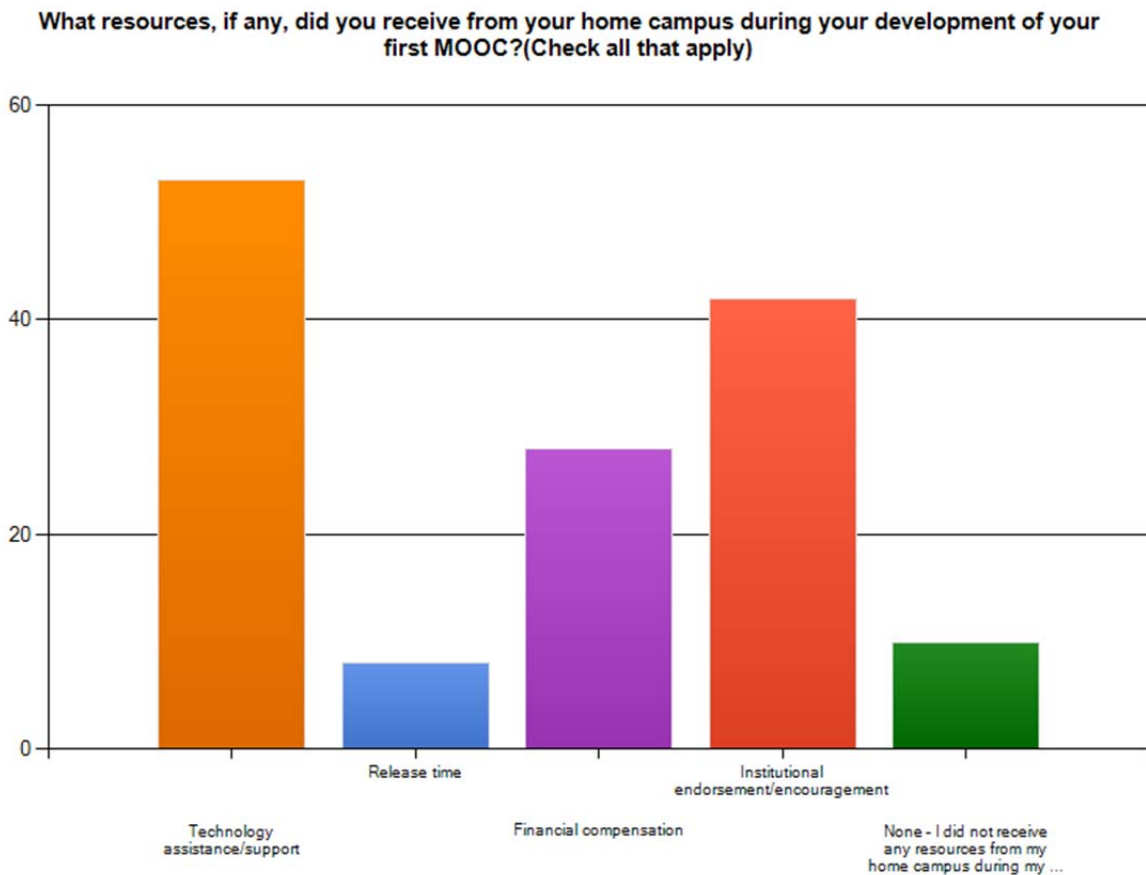
Administrative influence also took the form of the increased availability of specific academic support, such as access to technology resources, human capital (TAs, audio-visual technicians) and even stipends or financial support. The majority of respondents (76%) received some level of technology assistance and/or support from their home institution in order to develop their MOOC. Although even those who received stipends and technological support noted it was “somewhat token” in nature and not always substantive.

One instructor, a 21+ year veteran faculty member from a large state university, described the institutional influence in terms of access to these resources. “Our MOOC development team had access to resources and personnel (technical, logistical, production, etc.) that really influenced our decision to move forward with it.” Other early adopters described offers of release time for MOOC development, access to teaching assistants to help facilitate

MOOC development and forum monitoring, as well as audio/visual support as additional motivators for developing MOOCs.

The influence of institutional administration can be observed beyond initial direct encouragement and tangible resource allocation, as most participants' institutions were quite public regarding their support of MOOCs and their potential. Over 63% of respondents reported receiving institutional endorsements throughout the MOOC process (Figure 4.1), and 80% indicated that their home institution was "supportive to highly supportive" of their MOOC development.

Figure 4.1 MOOC Resources from Home Institution



As the faculty who developed and taught these early MOOCs can be considered early adopters, so too can many of their institutions. While not all professors developed and taught MOOCs because of a specific institutional-led initiative, many early adopters were working at high profile institutions which were publically linked to the early MOOC movement through partnerships with third-party providers.

An interviewee reflected his experience developing his first MOOC in the shadow of his institution's partnership with a third-party provider: "The University was approached by [third party provider] to be an early adopter of the MOOC platform. Applied Mathematics was targeted as one of the premier programs on campus to lead the effort of engagement in the MOOC world." Another respondent had a similar experience at his institution, "[Our University] had decided to partner with [the third party provider]. They wanted to ensure there was a high degree of quality control and wanted to support the delivery of a high quality product." This type of partnership was viewed as institutional endorsement of the MOOC trial, as well as a mechanism to provide additional resources and support for the development.

Enhanced Institutional Reputation

The institutional motivation for administration's encouragement of early adoption was perceived by participants to be altruistic, but also reputational in nature. Early adopters speculated that their institution's motivation to encourage MOOC development at such an early stage was a desire for publicity and enhanced brand reputation, as well as a drive to be involved in the early evolutionary stages of an educational innovation.

Participants reported that their home campuses recognized that MOOCs represented a new educational innovation and sought to support early development as a way to explore the

potential, while establishing (or reinforcing) their institution “brand” as a leader in educational innovation. A respondent reflected on her university’s desire to be a part of creating what MOOCs were to become. “[My] university perceives the MOOC as an experimental format whose purpose is still evolving. It wanted to be on the forefront of this experiment in order to be able to evaluate and to shape its eventual use in education.”

A Professor from a large research institution believed the institutional motivation was to use MOOCs to enhance the university’s brand, and potentially bring new students to the institution. He added, “we are exploring a variety of ways to reach new audiences. There is the possibility that MOOCs of high quality might attract people to our regular online certificates and degrees.” Other respondents specifically noted their personal desire to expand the reputation of their specific departments, as well as their college or university by offering campus-branded MOOCs to the general public.

Publicity for the institution was reported by early adopters as another potential motivator for some institutions to support MOOC development. This motivator differed slightly from those that felt their campuses were looking to enhance the brand reputation through association with an innovative educational practice. Respondents were slightly more critical of institutional motivation for publicity, as it appeared less about wanting to analyze MOOCs as an innovation, and more about hopping onto a bandwagon. One instructor noted “[My institution] wanted high profile and innovative teaching for publicity”. Another respondent echoed this sentiment, speculating that his campus felt it was “better to be on the cutting edge than to be left out.”

A professor from an elite private university felt frustrated by his institution's primary motivation to try MOOCs, which appeared based on a desire to 'not be left out' of a potential educational change.

There was a strong sense of "me too!" on my campus and a drive for publicity. That's all our higher admins talked about...incredibly frustrating! I was initially very interested in exploring what a MOOC would look like, and the possibility of reaching (and harnessing) a very large community of students. Ultimately, I held very different theoretical and practical views on MOOCs. On the theoretical side, one could envision a richer online learning experience than any previous venue, and that was really exciting. But on the practical side, I saw them mostly as a publicity stunt for my university. Conversations between faculty members preparing MOOCs in the very early days rarely got past the publicity and monetization aspects.

While the majority of the participants did not express such vocal disappointment with their administration's impetus to try MOOCs, a small percentage of the respondents indicated that their institution's perspective did not match their own goals.

Following the first MOOC cycle, some faculty found the publicity benefits for the institution to be negligible. "Publicity gains were marginal...other than that, I don't think it's been terribly beneficial to us." With MOOCs still at an initial stage of innovation, outcomes from efforts put forth by early adopters and campuses continue to be challenging to identify.

A small number of institutions saw a potential monetary advantage to MOOCs, in combination to the publicity, that they felt warranted further exploration. With increasing criticism regarding the rising cost of higher education, institutions continue to seek alternative revenue models (Lederman & Jaschik, 2014). Some saw MOOCs as a potential revenue generator, although in the initial adoption phase the specific business model was (and remains) unclear. Participants noted that their institution was likely "interested in potential monetization... beyond that, it made for good press for the university." Another participant from a large state

school observed the same motivation, “It was pretty unusual, to be sure, but I think several top administrators saw potential cost savings and they loved the publicity.”

Although some participants questioned the true motivations of their institutions, most viewed their campus support in a positive light and felt their institutions saw MOOCs as a potential educational disruption worthy of further exploration. Respondents noted that their campuses wanted “to research MOOCs”, to “lead or be part of a leader group” and generally just “be involved in an exciting new movement”. One interviewee believed that “the administration reasonably felt that getting out in front in terms of experience might be a good idea, given the changing landscape of higher ed.”

These institutions recognized the uncertainty associated with being on the forefront of an emerging trend, but were willing to invest institutional resources (financial, personnel and technological) in order to “be part of an unknown, but likely high impact, future in education”. One participant from an elite private institution characterized the intuition’s motivation around MOOCs as directly tied to the intersection of technology and delivery. “My campus likes to be on the cutting edge of technology and innovation, and MOOCs hit both of these. Plus my campus was directly involved in the initial development of MOOCs.” This finding indicated that the motivation for publicity was not just for publicity’s sake, but also a desire to on the “bleeding edge” of a new educational movement.

One respondent commented on his university’s thoughtful approach to the fast-moving innovation as they sought to be a part of the changing landscape of higher education. “My campus was highly supportive regarding MOOCs because we realized that education was changing and we needed to be early adopter so that we would have a voice in how education was

changing.” Even though MOOCs were evolving rapidly, some campuses were still able to approach MOOCs strategically, and remain focused on developing operational plans. Others were satisfied to move quickly, typically without clear strategy, and just play an active role in the MOOC evolution.

RQ2; What were the benefits and challenges of being early adopters, as reported by MOOC early adopters?

Early adopters personally benefited from the anticipated global reach of MOOCs, and felt a sense of “renewed” energy around teaching, mostly due to unexpectedly high levels of student engagement within their courses. The largest benefit from MOOCs appeared to be on the personal pedagogy of early adopters as they made changes to their teaching and courses in the on-the-ground classrooms.

The challenges were primarily organizational and technological in nature, with the majority of respondents indicating that time and bandwidth necessary to develop MOOCs was the most challenging aspect of the early adoption process. Other challenges surfaced in the use of technology, as instructors navigated copyright laws and struggled with challenges relating to the delivery platform (technological).

Benefit from Increased Global Reach

Early adopters felt they benefited from the advocacy and personal exposure afforded them by the global reach MOOCs, as well as the increased exposure for their department(s) and institutions. Further, respondents noted the impact of teaching a massive class with students from across the globe. One respondent, from a large east coast state university, described the benefit both to the instructional staff as educators, but also to the larger university. “We offered five

MOOCs, it has increased the reputation of all of us and our school. It also taught me a great deal about my area and world perceptions.” Similar large-scale reach was reported other participants who also recognized the worldwide interest in MOOCs within the student enrollment.

The advantage of teaching and interacting with a massively large student population was noted by several participants as benefiting both their program and their university. Smaller, lesser-known institutions felt the expected benefit from exposing their institution to the large number of MOOC students, noting “it was an effective outreach tool reaching thousands of students who never heard of my institution previously.” Other respondents felt they were able to expand awareness about their particular area of study - for instance, the Soul and the Afterlife, as noted by one professor - to a significantly enhanced audience that “otherwise wouldn’t be talking about these issues”.

One professor at a medium-sized private research institution added “my program received wide exposure around the world, which we would not get any other way.” Another interviewee observed, “Our University has gained a new presence internationally; for example, one student from New Zealand wrote that she had taken three of our MOOCs and found them superior to those offered by other, larger institutions.” The instructors teaching MOOCs were not only reaching a significantly larger population of new students, they were also receiving positive feedback from all over the world on their curriculum.

Personal benefits of reaching a global audience were also reported. A faculty member from a medium-sized private institution commented that “[the experience] broadened my view of education from one limited to my university to a more open one to students around the world.” Other participants reported the benefit for both the instructors and the other MOOC students

when working with a broad, international student audience. One interviewee, an English professor from a community college, found himself both surprised and pleased by the global reach of his MOOC.

We had a map where students could map where they were. We expected our map to be filled with people from the [local] community colleges. What we found, they were really from all over the United States, especially early college students, or people that wanted help with grammar and writing, but it was really people all over the world wanting to learn English. Very quickly that changed our whole perspective, seeing the map populated with all these pins from anywhere from Mongolia to Slovenia, to Scotland, and South America, and all these other places..... The diversity is so nice within that. There is all kinds of levels of students writing and connecting all over the world.

MOOCs provided new teaching experiences for these professors by allowing them exposure and interaction with students from around the globe.

Even instructors from larger, well-known institutions reported the benefits of increased exposure to their institution to a massive, worldwide audience. One participant reported connections between this increased reach and student enrollment, “A few participants in the MOOC have applied for admission to one of our degree programs. The main benefit has been the expansion of our megaphone.” Another professor summarized the benefits of greater reach in two distinct areas, “(1) International visibility and (2) more knowledgeable faculty, and of course our mission is to teach students which we have done for far more students.” In his case, he saw the MOOC as a mission-consistent way to expand reach to new students and enhance the learning experience for all parties involved.

Benefits of Massive Student Engagement

Many early adopters reported feeling renewed and inspired by the student engagement they experienced within their MOOCs. Both the quality and quantity of this engagement surprised many instructors, which had a strong impact on them as educators. Due to the

extremely large size of most courses, many respondents were pleasantly surprised by the high level of student engagement. The opportunity to interact with a huge crop of “motivated, driven students” reestablished a commitment to instruction and energized them as educators. A professor expanded on this personal benefit, “Pulling this off has given me confidence I didn't have before. If I can pull together an online experience that attracts 150,000+ people to it (our enrollment so far), I must have something worth saying!”

Early adopters reported learning from the MOOC experience and the students themselves, creating a reciprocal culture of scholarship for both student and teacher. One respondent reflected how he found the MOOC experience personally gratifying. “The course and the discussions far exceeded my expectations. Great discussions, hundreds of threads and thousands of posts. Great discussions on topic from all over the world. I strongly participated, learned a lot from my students, and had a great time.”

Another professor, who teaches at an elite private university, highlighted the impact of working with a large, engaged community of learners:

The MOOC community is impressive! They are highly motivated to learn new and often difficult information to improve their lives, to meet new intellectual challenges, and/or to satisfy their curiosity about how the body works. This MOOC has been a rewarding educational experience for me. I have learned a lot from them!

This sentiment was shared by many early adopters, who found the student population - at times - even more engaging than their smaller, on-the-ground, classrooms. One professor speculated that the noticeable increase in engagement may be due to the large cross section learners, so students could engage in different levels of discourse than in classrooms where all students are fundamentally at the same level.

Other instructors felt the benefit not just of engaged student interactions, but of positive interactions with students from around the world. Others noted that the expansion of teaching to hundreds, or even thousands, of international students can be challenging in scale, but rewarding when the students engage at a higher than expected level. One instructor explained his pleasure at seeing a “virtual community” unfold during the course of his MOOC. “I was amazed by the students' spontaneous creation of (eventually hundreds) of discussion threads. For the duration of the course, there seemed to be, if I may put it this way, a real sense of virtual community.” This peer mentorship was surprising to several instructors who watched these learning communities evolve into “significant support systems” for the students engaged in the coursework.

Benefit to Personal Pedagogy

The psychological benefits experienced by early adopters was reaffirming to educators on a personal level, but there were also concrete instructional benefits that resulted from their involvement in MOOCs. The most significant finding in this study was the scope of tangible, sometimes significant, changes to on-the-ground teaching as a result of early adopters MOOC experiences.

Participants reported engaging in new conversations around teaching and learning as a result of their MOOC experience. Early adopters were sought out by academic colleagues to discuss their MOOC involvement and to engage in conversations on online pedagogy and best practices. A professor from a large Midwestern state university felt she personally benefited from the experience and was seen as an innovator on her campus as a result. “Others have come to me for advice regarding teaching, especially on-line learning, and I think it has helped bolster hybrid and on-line learning overall.” In addition to her new reputation as an innovation leader, the experience sparked new conversations on teaching and learning on her campus.

Some participants reported a sense of anxiety and “icing out” from their colleagues during the initial stages of their MOOC development. But overall findings indicate that the majority of early adopters did not see any long term negative consequence on their collegial relationships. In fact, over 46% of respondents (n=71) felt that their relationships with academic colleagues had improved as a result of their experimenting with MOOCs. Furthermore, participants felt valued for their experimentation with MOOCs and have enjoyed post-MOOC engagement with their campus community.

One respondent elaborated, noting “people seem *really* interested in hearing about the experience; additionally, we've become resident experts on the issue, and our opinion about how MOOCs work (and how they don't) carries weight in administrative meetings [that are] exploring the potential for MOOCs.” Other early adopters reported engaging in “vigorous discussion about them (MOOCs) and how they might be used, especially in terms of “flipping” the classroom” at an institutional level.

The concept of a “flipped classroom” is not necessarily a new practice, as the integration of technology has been increasingly used in educational classrooms for over twenty years and the specific flipped classroom concept was coined in the early 2000s (Tucker, 2012). The questionnaire indicates that 36.8% of the respondents have been integrating technology in their on-the-ground classroom for ten years or more. The findings indicate that the majority of participants integrated greater use of technology into their on-the-ground courses immediately following their experiences teaching MOOCs.

Participants reported that because of their MOOC experience it “accelerated best practice adoption of instruction to some on-campus courses (e.g. blended models)” and “led to a natural

"flipped" class in the same subject on campus, which was very easy to run." One professor from a large state institution found concrete benefits relating to his teaching through the MOOC experience, reporting "I've become more active in discussions regarding online learning and teaching. I've started to develop and offer "flipped" courses. I've done more to incorporate technology in my teaching." For example, he offered links to previously recorded digital material on the specific topics for students to review prior to class time. While many instructors already had existing content appropriate for online use, most found the specific formula for MOOC content a new and different way to parse up the course material.

A professor who teaches at an elite university often linked with the innovation stage of MOOCs, reports dramatic changes to her pedagogy as a result of being an early adopter.

I no longer lecture. My students now watch my lectures in modularized form online. Class time is completely spent on problem solving, practice, and labs. My lectures are better quality than when I delivered them in person and, when I've surveyed students, the vast majority (85-90%) prefer to watch the lectures on their own time. The flipped classroom makes a huge amount of sense now that it's technologically possible.

The use of the digital materials in modular formats allowed for specific independent review on topics that some students found challenging, whereas other students could move on to the next module.

Many instructors may have already had course materials or lecture videos available digitally. One big difference about the MOOC format was the smaller segments of content that the third-party provider recommended during course development. Participants noted that they often already had longer-form lectures captured on film. The MOOC format changed their approach by forcing (or encouraging) them to create shorter, content-focused sets of videos. These shorter videos resulted in a greater amount of digital content that could be used to supplement - or even reinvent - existing on-the-ground courses.

One interviewee expanded on the impact her MOOC involvement had on her ability to refine and enhance her on-the-ground pedagogy.

What putting these MOOC materials together allowed us to do is move towards that completely flipped experience on campus because now we've got better, more integrated materials where students can go off watch literally a 25-minute video. Not three hours, or an hour-and-a-half, or anything like that, but 25-minute video that gives content, demonstration, a conceptual idea about where they might take their project. It's sort of all integrated into one package. What I do with my students now, I taught an accelerated course this winter. They come in and if they haven't watched the video, they're going to have trouble taking the next step in their project, but I told them to get out their earbuds and watch it. Again, it's the idea of allowing students to use time with me, and without me, in the most efficient manner they can, instead of me dictating how they should use their time. In terms of a learning experience, I think this had helped both students to take more responsibility. It's not that they now work by themselves; it's that now they come with questions. Now we can communicate.

Her experience illustrates the significant shift in pedagogical practice for which MOOCs was the catalyst. Without the MOOC experience pushing her creation of a different set of digital resources, this professor - and others - would not necessarily have had the opportunity to reflect on and change their pedagogical practice within the classroom.

Beyond flipped classrooms, professors also found benefit in the large amount of feedback and assessment available from teaching hundreds and thousands of learners. A professor expanded upon this benefit, noting that MOOCs provided "an ENORMOUS base of students against which to judge efficacy of instructional approaches and assessment tools -- far more than ever before. Helped me appreciate the points students find most confusing. Made me increasingly interested in online content and use of classroom time for active learning rather than lecturing." Unlike traditional on-the-ground classrooms, the MOOC platform has the ability to produce large amounts of data. This data can be used by the instructor, institution and/or third-party provider to deeply analyze student behavior.

Another reported pedagogical benefit came from the timely (yet time *consuming*) content development process. “The extensive reading and fact-checking that the MOOC format required has improved the timeliness of my own slides. I also now have access to a bank of slide decks prepared by and shared among me and my fellow course instructors. This allows all of us to teach a broader range of topics” reported one professor. While copyright and legal issues (discussed in a later section) were overwhelming challenging to early adopters, many eventually found the rigorous development process resulted in a stronger set of course content materials.

Additional pedagogical benefits were directly tied to individual teaching materials. The process of creating and teaching a MOOC made participants more aware of their teaching style, and allowed them to adjust materials for a more effective on-the-ground classroom experience. One participant described “[The MOOC experience] made me try to explain things more clearly in my classroom and to consider adopting more rubrics as well as use the MOOC materials in my assigned readings/screenings.” For example, another professor noted he and his co-instructors would aggregate the questions received throughout a week and post short “clarity” videos that tried to better clarify concepts that students reported struggling with during the previous weeks lessons.

Although many early adopters are - or intend - to use digital lectures as a component of their on-the-ground teaching, others found the videos useful to guide enhancements of their “live” teaching style. An instructor from a large private institution elaborated, “I am much more concerned about student engagement in my lectures [now]. I am thinking intentionally about how my lectures are NOT like a video, and therefore they end up being much more interactive.” The ability to utilize class time to address specific questions and engage in critical reflection and

discussion was highlighted as one example of how instructors chose to use class time differently than what is presented in video form.

Challenges of Bandwidth and Time

Overwhelmingly, early adopters reported that their major challenges were issues around personal and professional bandwidth. This included finding adequate time to create the course and materials as well as the time necessary to effectively moderate and engage with students once the course was live. One respondent noted, “[it] takes time to develop materials, run pilot to work out kinks, and to keep up with course as it runs.” Other participants reported that the development and deployment of MOOCs took significantly longer than anticipated to create, both in the editing and production of MOOC specific materials.

Adding to this time challenge was the fact that only 11.6% of early adopters reported receiving any sort of release time for their MOOC development. Therefore most professors were working on MOOCs on top of their existing responsibilities. One respondent said “Time was an issue. I still had my regular responsibilities at school - this was extra.” Another added, “...time needed to generate the videos was a considerable investment. All of the PowerPoint lectures had to be reformatted from the “in house” course and then re-recorded. This effort was done in addition to the delivery of other courses on campus”.

In addition to the work to reformat or create written (presentation) course materials, early adopters also felt challenged by navigating the audio/visual aspect of MOOCs. Specifically, many of the third-party MOOC platforms were structured focus on short video bursts of content, followed by an interactive quiz to test viewers understanding. This format differed greatly from the existing course format of most instructors, whether they were culling from existing online

materials or working to repurpose an on-the-ground course. A participant reported “[It was challenging] to figure out ways to chunk my course experiences into 8-12 minute video modules. [Also,] designing emotionally engaging exercises into each module....I worried about the quality of videos.” The participants found the process challenging as they worked to determine how best to segment and videotape their content.

To try and address the bandwidth challenges relating to early development of MOOCs, a large number of respondents tapped existing TAs and/or recruited new student assistants to help. “...recruited a great assistant instructor and other staff who supported the class” noted one respondent. Another participant felt their development hinged on the additional support, “Fortunately, my institution provided sufficient TA and technical support. If I didn't have this support, I would not have had enough time to develop MOOCs.” Only eight respondents specifically noted the use of teaching assistants or graduate students, but all eight found their involvement critical to the overall MOOC development process.

While for some the early adoption process was relatively solitary, others were struck by the sense of teamwork, group exploration and “many hands make less work” mentality that the MOOC experience seemed to require. One participant said “We encouraged each other as team. We donated our money and time to make it happen. We hung around with other people doing MOOCs to keep our spirits up. We talked about the great research we were going to do.” Many instructors were teaching at institutions that launched several MOOCs, and were able to lean on other colleagues that were developing their own MOOCs for support and feedback.

Early adopters had mixed feelings on the end value of their large (and in many cases unexpected) time and bandwidth investment. Some who found the development process intense

were not certain that the time investment would be worth it in the end. “It requires a very large time investment and learning curve. The value proposition is questionable at best.” Yet others, who also felt the pinch from limited bandwidth in the beginning, were able to foresee how successive offerings of their course could become increasingly less time intensive. “The up-front time investment in material preparation and shooting was staggering. Now that it can be run with only forum participation, though, it's a great return on investment.”

Copyright and Legal Challenges

While the professors were focused on creating engaging academic content, additional attention also had to be paid to the legalities involved in offering these courses online for the world to take. A large number of participants reported challenges relating to navigating intellectual property and copyright laws as they developed their MOOC content.

MOOCS are a huge opportunity for improving education, but also can be misdirected in ways that will be very damaging. Most people seem to have forgotten that there are two "O"s in MOOC - one is for "open", which I think should mean both open access and open resources. I insisted on a creative commons license for materials for my MOOC and for all the course materials I develop. Unfortunately, most MOOCs today are not open at all, but apply a very restrictive copyright that prevents any adaption or development of the materials.

This type of struggle to secure rights and licensing was shared by the majority of respondents.

While some taught at institutions with strong legal support, others were left on their own to navigate copyright laws and regulations.

Those participants who encountered these challenges found that they primarily existed around issues pertaining to securing image rights and obtaining copyright permissions from publishing houses. To try and avoid the frustrations of maneuvering through copyright and intellectual property issues, many professors decided to create brand new course materials

themselves. One respondent noted “we perceived that our university would care quite a bit about copyright and thus we had to redesign the course entirely from scratch to avoid re-using any material.” Others spent significant amounts of time securing rights to existing materials that they felt were critical to the course.

While some professors (and their institutions) worked directly with the publishers and copyright holders to seek clearance, others took their own additional time to seek out new material from public domain and ‘free form reproduction’ sources. Although the time investment to re-develop materials was greater on the individual level, some instructors felt this revision process actually sped the overall development (since they did not have to navigate legalities with university counsel.)

Technological Challenges

Respondents widely reported challenges relating to technology - both in the use and support of in-house technological resources, as well learning to leverage the third-party delivery platforms. Notably, many of the MOOC early adopters were relatively new to online teaching when they first began developing a MOOC. Approximately 75% of respondents (n=77) had either fewer than two years’ experience, or *no* previous experience, with the development of online curriculum and courses.

Lack of hands-on familiarity using online teaching and learning resources added to the development challenge. One participant noted: “The technology [was problematic]. Not sure what best to use in terms of developing the on-line materials and then not sure how to use it. It was all quite time consuming.” With little background in online teaching, many early adopters were challenged to learn how to navigate and leverage the technology platform(s) necessary to

delivery MOOCs within the rapid MOOC development cycle. For example, even uploading and formatting course materials felt challenging and time-consuming for those instructors who were less familiar with online delivery platforms.

These technology challenges were especially frustrating when professors sought to use existing online content, yet still found barriers with technical implementation. One professor reflected: “Production and programming assistance - that was the biggest issue. We had the curriculum, we had the peer review platform conceived--but we didn't have the expertise or support from the relevant units to get the right people and services into the project.” This frustration was further magnified when early adopters were not able to tap internal support resources or on-campus technical assistance. While many participants were able to utilize some existing campus resources (such as videography support), most of the support was limited to the production of the materials - not the online course development.

Participants, even those familiar with online teaching and technology, also struggled to learn the proprietary delivery platforms used by third-party providers. All but one of the respondents (n=74) used a third-party platform to host and deliver their MOOC. Most expressed finding the learning curve to use the platform challenging, especially those in the very first wave of MOOC offerings. One respondent highlighted how the technical support was severely lacking during the early cycle: “the platform was new so there were initially some technical barriers - and difficulty getting timely technical support. So we created our own tech support.” Another respondent reported similar challenges: “the [specific third party provider] platform was not the easiest to use and was changing all the time.” While the third-party platform improved as time went on, the earliest adopters struggled with technology during this beta phase.

RQ3: What have been the impact and/or implications on the institution of being a MOOC innovation early adopter, as reported by MOOC early adopters?

The colleges and universities that sponsored early adoption of MOOCs saw positive impact on their institution in the form of enhanced reputation as an educational innovator, new research/data and changes in instructional pedagogy. Yet they also wrestled with the socio-political implications of being early adopters, with uncertainty regarding role of the faculty. . While faculty and administrators engaged in new conversations around instructional practice, the experience highlighted potential deficiencies within the current university resource(s).

Institutional Reputation and Leadership

Similar to early adopters reporting a sense of enhanced individual reputation, institutions felt the positive implication of enhanced public awareness of their institution as a result of MOOCs. The impact of increased global exposure of the university brand was viewed positively by both the institution and the early adopters. One professor from an elite private institution with a championship collegiate basketball team related a conversation he had with a university board member regarding the impact of his early MOOC:

Well I'll tell you what one of our Board of Trustees said to me....he said, 'you know, there were more people watching you teach [in the MOOC] than come watch our basketball team play'...I mean, what he meant was that there is great visibility for Acme University through this mechanism and we like it.

MOOCs brought increased awareness to the institutions through both media attention, and large-scale student enrollment. Especially at medium-sized institutions, where the average class size is typically only in double digits, there was the positive impact resulting from tens of thousands of students now exposed to the institutional brand.

In addition to general brand awareness, respondents also reported an increase in the perception of their institution's leadership role in education as a result of the MOOC showcasing their quality of instruction and focus on innovation. One respondent added: "As a campus, we gained some recognition for attempts to innovate. For example, we hosted many university officials and faculty from around the world who wanted to learn from our experiences." Other participants reported how the experience showcased their institution's teaching faculty and innovative pedagogical approach, and "associated the campus with this new educational movement." With only a small handful of institutions publically identified with the early phase of MOOCs (J. Johnson, 2012; "What You Need to Know About MOOC's," n.d.), home institutions of MOOCs tended to garner significant media and industry attention.

The impact of this increased exposure and brand positioning in some cases even brought in new funding opportunities, in terms of internal and external grants. "[Our] profile was raised and we received several externally-funded grants are MOOC related" said one respondent. Notably, one participant reported that the MOOC experience brought in donors from an unexpected place; the MOOC students themselves. "We got the name of our campus out there as an innovator. We got several small donations to my department from students in the MOOC." Several respondents were able to develop their courses through grants, and then ended up receiving supplementary funding to do additional research on MOOCs, as well as develop new courses.

Research and Data

Potentially the most tangible implication of MOOC early adoption is the institutional access to new data and research as a result of the experience. Data was culled from both the third-party providers (back-end systems), as well as from independent research conducted by

early adopters and their institutions. In addition to informal or campus-specific research, the amount of scholarly articles and publications has risen dramatically since the beginning of the early adopter cycle.

Access to course data provides academics with large amounts of information regarding innovation teaching and learning practices. One respondent noted: “I think that we can make better decisions moving forward given the experience. Those decisions will be informed by MOOCs delivered in several different areas, and will inform institutional practice in a variety of areas” Participants also reported the advantage of increased research not just on MOOCs as a concept, but on instructional technology, student success, and pedagogical practice.

This finding is in line with early predictions about the benefits of MOOCs, where industry experts anticipated the massive influx of data would prove useful in examining issues of teaching and learning behavior (Skiba, 2012; Staton, 2011). One early “architect” of MOOCs predicted “it's a live laboratory for studying how people learn, how the mind works, and how to improve education, both residential and online” (Parry, 2012). Now two years later, MOOC early adopters report similar benefits to their institution as a result of educational research and data collected from the MOOC instruction period. For example, data culled from MOOCs relating to how students interacted with video content (rewinds, replays, pausing, etc.) can provide valuable data on how students process and learn new content. This type of data is critical for institutions to examine as they seek to improve their overall pedagogical practices.

Instructional Changes

Institutions have been impacted by instructional changes in the classroom as a result of increased resources and experiences gained through the MOOC process. Pedagogical changes,

such as increased instances “flipped” classrooms and high levels of technological blending into the classroom, were observed rather immediately. Other participants echoed this observation, noting that the MOOC experience “led to a natural ‘flipped’ class in the same subject on campus, which was very easy to run.” MOOCs also increased awareness of the student experience, as one professor reflected: “I have become more concerned with student engagement and finding ways to improve student motivation in the classroom and in online classes. I have worked to find ways to incorporate technology into my teaching to improve student learning and satisfaction.”

This drive to incorporate technology within the classroom was not necessarily new for the participants. Over 81% of respondents reported some level of technology integration already existing in their on-the-ground classrooms. Yet most of the participants felt the MOOC experience altered - and even increased - their use of technology as a pedagogical tool. One interviewee reflected on this noticeable impact that the MOOC had on her classroom experience:

What putting these MOOC materials together allowed us to do is move towards that completely flipped experience on campus because now we’ve got better, more integrated materials where students can go off watch literally a 25-minutes video. Not three hours, or an hour-and-a-half, or anything like that, but 25-minute video that gives content, demonstration, a conceptual idea about where they might take their project.

This example, where the professor found the shortened, more prescriptive video format dictated by MOOCs a significant improvement over previously used lecture captures, was echoed by most of the instructors.

When reflecting on any pedagogical changes as a result of MOOCs, instructors specifically identified this use of short content-specific video “clips” to be something significantly new that they were able to incorporate into their teaching. Participants noted that the use of the new materials created for MOOCs, including videos and quizzes, altered their

overall classroom teaching approach and enhanced the student learning experience. The institutional impact of these changes allowed for increased student support and learning, which fell in line with overall institutional goals and/or was a component of their university mission.

In addition to changes within the classroom, several instructors noted shift in their collegial relationships outside the classroom. While a small number of participants reported a negative shift, or “icing out”, from their academic colleagues, more reported increased engagement through discussion and collaboration. As the academic faculties are, arguably, at the heart of any institution then any positive changes in their interpersonal and collegial relationships will have an impact on the overall institution.

Only a few instructors developed and offered their MOOC course(s) independently, with no outside support, resources or collaboration. The unique collaboration that occurred during the MOOC development and instruction process created new opportunities to collaborate with colleagues, as well as forge new collegial partnerships. A respondent from an elite private institution extrapolated on this significance:

The value has been defined in various ways, including the capacity to advance the institution's longstanding goals in interdisciplinary and global education, while translating lessons learned from MOOC experimentation into innovations in the classroom. Although I have been working in online education strategy for many years, most of my early adopter colleagues were introduced to a team-based instructional design approach for the first time while working with our central instructional technology staff to develop their MOOCs. The increasing awareness and interest in online education and team-based instructional design by faculty is probably one of the most significant campus changes to occur as a result of our MOOC participation.

While this level of interdisciplinary and cross institutional collaboration is not wholly uncommon, the unique structure of MOOCs created new opportunities for collaboration amongst colleagues who might not otherwise have opportunities to work closely together.

This increase in collegial collaboration was not limited just to an instructor's home institution. For example, several instructors also forged partnerships with colleagues from their discipline at other colleges and universities. Often MOOCs were offered with multiple instructors from several different universities who team-taught the course. Participants highlighted the positive impact of working with instructors from other institutions throughout the MOOC experience, and planned ongoing collaboration and projects as a result.

Structural Implications

Early adopters reported both positive and negative structural implications for their organizations post-MOOC. One negative structural implication that was exposed through the MOOC experience was various levels of organizational and technological deficiencies. For example, one participant noted: "the lack of resources on campus due to systematic state underinvestment in higher ed has now been exacerbated by MOOCs – it is one more thing to invest in." As early adopters struggled to implement their courses online using existing campus resources, deficiencies in information technology infrastructure, as well as variable levels of technology support, were left exposed. Due to the rapid nature of MOOC implementation, often colleges and universities did not have available funding to apply towards resolving those deficits in a timely manner.

Participants also reported positive structural implications that resulted from an institutions MOOC experience. Examples included improved and/or clarified processes for faculty innovation and professional development, as well as increased support systems for collaboration and research. One participant noted an increase in support specific to MOOCs through a university center of focused on online learning:

The Center for Instructional Technology, who supplies the support for us for running the MOOC, has faculty meetings every few weeks where we can get together and talk about current struggles with our courses, what's changing with [the third party provider], just institutional issues with MOOCs....we get together fairly frequently. That's been helpful.

In addition to increased support by existing entities, as evidenced above, other campuses created entirely new departments or centers to support ongoing innovation development. One professor noted that his university "established a new Institute for Digital Learning that offers guidance in MOOC development and has a small studio for filming, and offers small grants." Other participants reported new institutional support liaisons and approval processes that developed as a result MOOC early adoption.

Impact on Faculty

While the majority of participants reported positive (or neutral) impact on their institutions, some reported various negative implications - such as loss of research time, the cost associated with MOOC development, anxiety regarding role of the faculty in the future, and the lack of business model for MOOCs in the future. Additionally, with media continuing to report extremely high levels of attrition (Haber, 2013; Kolowich, 2013a), some early adopters were impacted by the 'backlash' over these low completion rates.

Respondents reported frustration with the media reports of "failed" MOOCs, as many felt positive about both the experience and the outcome. One participant noted: "we received a lot of negative press and criticism due to the poor performance of some of our students in our initial offering. Some have called our efforts a 'failure' despite evidence that we improved our courses after the first offering." While the instructors working on these courses did not necessary view their courses as failures, this highly published counter-perspective was reported as one drawback to the early adoption experience.

As discussed earlier, most instructors reported a congenial response from their academic colleagues regarding their experimentation with MOOCs. A small number of participants did acknowledge that MOOCs made some faculty anxious in regards to its potential negative impact on the future of teaching and the role of faculty in higher education. One participant characterized the response as nervousness over the future: “Generally speaking, there's a bit of skepticism regarding MOOCs in my university... a lot of that comes from the fear that it will displace labor, tenure-track positions, end up watering down the curriculum, and so on.”

But after experiencing MOOCs first hand, participants acknowledged that the MOOC model - at least as it was currently structured - did not appear to threaten the status quo of faculty as instructors or the need for physical campuses as institutions of higher learning. One interviewee expanded upon the invalidity of this early concern:

Some of the people that I talked to, they look at me and say by doing this, you're essentially putting yourself out of business. Nobody's going to want to take the in-house course. They're just going to take the free course and not going to want to pay for the tuition. In fact, we found exactly the opposite.....The in-house class is still taking the class because they want the transcript to show that they're taking this particular course but they're gaining from the MOOC in the sense that they now have extra resource that they can go to for review and for studying.

Similarly, another participant reported relief after their first MOOC that faculty would no longer be “out of a job” or “obsolete”. This reflected the overall anxiety that surfaced as early media accounts speculated about the career implications of MOOCs on faculty, but also the shifting perception of MOOCs role in higher education.

RQ4: What is the perceived future of MOOCs as an educational innovation in higher education, as reported by MOOC early adopters?

While the majority of respondents (86.6%) agreed that MOOCs were not a “fad” and thus would not disappear altogether, there is still much uncertainty or clarity regarding the future of MOOCs in higher education. Sixty-six percent of respondents agreed that “MOOCs will play a critical role in the future of Higher Education” in the future, and 98.5% believed they have the ability to increase overall access to higher education for learners.

Early adopters also foresaw MOOCs playing an important role in advancing educational research on both student achievement and teaching/learning pedagogy. They also anticipated increased use of MOOCs within on-the-ground classrooms, both as official “flipped” classes and as supplemental learning materials. The most unclear future prediction was the ideal effective target audience for MOOCs, as well as if they could someday be used for academic credit.

MOOCs Use in Classrooms

As MOOCs continue to evolve and morph, the most immediate and identifiable next stage is their increased use to supplement face-to-face classroom teaching and learning. Over 92% of respondents felt that MOOCs can add value to their on-ground classrooms. As discussed earlier, the enhanced use of technology (primarily those modules developed for MOOC use) in a blended or “flipped” classroom model was implemented by many early adopters into their existing courses almost immediately following their MOOC experience. Participants anticipate this blended use of technology within the classroom will continue to be applied with increasing regularity as more MOOCs are developed, and instructors continue to experiment.

When looking towards the future, the continued classroom use of multi-media materials originally developed to fit within the MOOC format was viewed by many as beneficial to the student experience. While most early adopters endorse the use of the MOOC materials in the classroom, many remain unclear on the appropriate level of integration.

I don't see MOOCs going away, but for a University, we need to look at all methods of teaching/learning, and should use a mix of teaching methodologies; I do not see a full MOOC type curriculum (even though Governor Brown has suggested such...to be more cost efficient); we need to conduct scholarly work to assess the student learning with MOOCs, and some curricula may be more amenable to a MOOC than others.

Continued research on student engagement, both on and off line, is perceived as key to determining how MOOCs fit into the classroom of the future.

Using MOOCs to increase personalization of the student learning experience is another, slightly different, use of MOOCs in the classroom that some participants envision on the horizon. For example, the ability for students to utilize the multimedia materials at their own level and on their own timeline was viewed as a potential future implication of MOOCs in the classroom. This approach surfaced earlier in the findings as well, as professors began to experiment with providing MOOC lectures to their students both in and out of class. One respondent noted: “[Higher education is] just getting started with actually personalized on-line education (i.e., classes with multiple presentations of the same or similar content that choose what to display to each student individually).” MOOCs, he further projects, can play a large role in changing the way academia approaches personalized learning.

Future Educational Research and Innovation

At the heart of MOOCs potential future impact in higher education is the valuable educational research they can provide regarding student engagement, alternative learning

modalities, and the use of technology within the teaching/learning cycle. MOOCs can provide rich data resources that the academy can use to continue refining the educational process.

Respondents view MOOCs as continuing to evolve, and as such continuing to provide valuable data and research.

The data collected through early MOOCs, gathered both by the institution and the third-party providers, continues to bolster ongoing research on student learning and engagement. Specifically the “big data” that the third-party providers are able to supply instructors provides research that most professors have not previously been able to take advantage of in the on-the-ground classroom environment. One respondent saw enormous possibilities in the new access to student learning data, culled by the third-party platform. “[The third-party party] is also being very, very good about generating a lot of information for us. They’re now feeding back to us that this question did well, this question did not, etc. They’re doing an item analysis which we didn’t have up to this point.”

Additionally, over 40% of participants are involved in their own research regarding MOOCs, as well as participating in other research on their home institution. There continues to be a dramatic uptick in scholarly articles and studies published on MOOCs as a result of the emerging data regarding student achievement, attrition and learning behavior.

The hype seems to be over and now we can get into the real work of understanding what MOOCs can do. For example on my campus, the data from our calculus is being used to understand when people hit a trigger point that if they don’t understand one concept they will struggle moving forward. Creating moment where intervention is critical.

The sentiment that the “hype” is finally dying down was echoed by many early adopters. This has left many (both individual and institutional) wondering how a business model for MOOCs may or may not evolve. In addition to using MOOC data for teaching and learning research,

many early adopters anticipate the immediate future will focus on determining what – if any – business model might sustain MOOCs.

Lifelong Learning and Academic Credit

Who MOOCs are truly designed for, and whether or not students should be able to receive academic credit for MOOCs, remains the most controversial aspect of MOOCs going forward. Exactly half of respondents (n=68) believe that students currently enrolled in an institution should have the potential to receive credit for a MOOC course offered by their own institution. Slightly less, 47% of respondents believe that students should be able to receive credit for a MOOC course offered by another institution. Notably, 100% of respondents agreed that MOOCs have potential to increase educational opportunities for non-enrolled (life-long learner) students.

Even with a lack of agreement on the future of MOOCs, many respondents felt the media storm regarding was premature. Without the testing and reinvention that happens during the early adoption cycle there would be no data on how MOOCs may or may not be useful in higher education. One instructor felt the media hype surrounding MOOCs distracted from the industry's ability to focus on the experimental process itself.

I'm perplexed by the "controversy" around MOOCs. In my mind, it's no different from when we moved from overhead slides to powerpoint slides. There will always be technological advancements. In my experience, these generally end up having mostly positive outcomes. I can now teach people across the world who may not have access to high-quality education locally. I don't think this is going to take away teaching jobs, as students will still need a local instructor to engage them in more practical exercises and practice. It will be interesting to see how the MOOCs are sustained (particularly those that are non-profit). My institution is pouring a lot of support into MOOCs now. But what happens in a few years when the excitement around them has died down? I hope institutions like mine will find a way to make them sustainable.

His perspective articulated the concern held by many respondents that the ability to objectively observe and evaluate the MOOC phenomenon was often overshadowed by the media speculation.

One possible future that early adopters envisioned involves the segmentation of different MOOCs for different targeted learners; (1) lifelong learners for no credit (where many students already have advanced degree), (2) enrolled students for academic credit, and (3) basic-skills work for high school and/or community college students. To support this, respondents predicted that the delivery model would continue to be refined and enhanced in order to best deliver MOOCs to the trifurcated target populations. This involved the “weeding out” of non-effective courses (based on attrition and other data points) and an increased focus on enhancing those MOOCs that “work”.

Overall, most respondents foresaw an immediate future that focused on the development and use of MOOCs for lifelong learning and educational advocacy, and a longer-term future that continued to explore and refine providing MOOCs for academic credit. One respondent reflected this hope: “Like all media darlings, MOOCs may already be sliding into the trough of disillusionment ...however, what they continue to represent is the thirst for knowledge worldwide. For many aspiring people here and abroad, they constitute a lifeline. We need to remember that whenever we're tempted to dismiss them as last year's sensation.” As the future of MOOCs continues to sort itself out, respondents remained optimistic that the educational industry would remain interested and invested in the potential of MOOCs.

Summary of Findings

Early adopters were driven to develop and teach MOOCs by a personal desire to experiment, which was marked by their willingness to test the emerging MOOC innovation with little expectation regarding outcome. They were intrigued by the potential to expand their personal reach as an educator and the possibility to teach a global, virtual classroom of hundreds or thousands of students. Many respondents were self-motivated, learning about MOOCs through mainstream and industry publications and seeking out the resources to design this new educational innovation. But the majority were encouraged and supported in their MOOC experiment by their home institution, which manifested through resource and support allocation and institutional endorsement. The institutional motivation was a drive for publicity, as well as a strategic desire to position the university or college brand as one of educational innovator.

MOOC instructors were surprised by the high level of student engagement and as a result of their experience felt a renewed sense of energy around teaching. Additionally, many instructors benefited from the academic advocacy and personal exposure afforded them by the global reach of most MOOCs. As many instructors developed additional technology resources to support their MOOCs, they ultimately benefited from the newly created technological and multimedia materials in the classroom leading to heavily blended and/or “flipped” classrooms. Time and bandwidth to adequately develop the MOOCs was a major challenge for early adopters, as resources – even when supplemented by their home institution – remained scarce. Furthermore, learning to navigate and use the technological resources and third-party delivery systems posed a large trial for most early adopters, as they notably entered the experience with minimal online teaching experience. Lastly, navigating complex copyright and usage rights

issues forced many MOOC adopters to re-develop their teaching material to avoid the headaches associated with the legal maneuvering necessary to gain clearance.

Increase brand recognition and awareness positively impacted the home institutions that sponsored MOOCs. Colleges and Universities that sponsored MOOCs also benefited from new access to data and research regarding student learning behaviors, teaching and online pedagogy. As MOOC professors began to utilize the technology and multimedia materials in their classrooms, the institutional impact was felt through improved teaching and learning practices. Structural implications were mixed, with some institutions creating new operational systems to advance their ability to support MOOCs, while others felt the pinch of decreased or inadequate resources.

Lastly, all early adopters felt MOOCs could be used to support lifelong learners, but there is little agreement on the potential for future credit-bearing models. The strongest and most immediate future for MOOCs in higher education seems to be in their ongoing use to create flipped or blended classrooms. Further research and study is desired to clarify target populations for MOOCs, how to evaluate student learning, and ways to increase completion.

In the next chapter I examine the implications of these findings through the lens of innovation diffusion and early adoption, explore major implications for practice, and identify opportunities for further research.

Chapter Five: Recommendations

Introduction

In the beginning rush of attention surrounding MOOCs, there was considerable speculation regarding the ideal use and potential impact of this new innovation on teaching, learning, and the traditional higher educational structures. Yet universities and colleges were rushing to implement MOOCs despite neither data nor clear understanding regarding their potential disruptive force on the educational landscape. To examine the MOOC phenomenon more closely, I conducted research with potential “early adopter” segment of the population. These were the instructors and institutions that were at the forefront of the movement and were developing and offering MOOCs despite the lack of research or clarity regarding their role in education.

This study sought to examine the motivations and implications of the first wave of MOOCs on educational structures. There were two major findings. The first concerns the institutions that sponsored MOOCs, and their primary motivation to use MOOC involvement in order to raise and/or enhance their institutional ‘brand’. The second finding focuses on those faculty who self-selected to participate in MOOCs at the early stage of their development. The study uncovered major pedagogical implications on these professors approach to teaching and student engagement through the use of technological enhancement within the classroom.

In the following chapter I will explore each of these major findings, and reflect on these findings as they relate to both institutional and instructional (individual) leadership. I will also make observations about how MOOCs fit within the projected Innovation Diffusion curve in

terms of early adoption. I will then identify limitations in the study, implications for practice and suggestions for future research. Finally I will provide closing thoughts on MOOCs relationship to educational innovation and disruption within higher education.

Institutional Reputation

This study revealed that academic institutions were driven to sponsor MOOCs during the initial stage in order to “get the brand out there” and for the perceived publicity gained through being associated with a potentially game-changing academic innovation. The faculty involved in MOOCs, for the most part, took their institution’s drive for publicity and reputational capital in stride. Some even acknowledged their own personal desire to enhance the reputation of their home institution as part of their individual decision to experiment with MOOCs. Overall, the individual motivation to try MOOCs was not all that different than institution motivators. Faculty was primarily motivated by internal stimuli such as ego, reputation, and curiosity while institutions were motivated by reputation, publicity and a desire to try new innovations.

Risk Tolerance

By participating in MOOCs, even at an early and unproven stage, the institutions were forever linked to the movement through media articles, reports and throughout the industry - regardless of the eventual outcome. Yet there was risk associated with this decision, as the MOOC landscape was moving so swiftly that new perspectives and data – often contradictory - emerged daily. This level of risk tolerance is not typical in higher education, which is traditionally known for its slow, methodical decision-making processes (White & Glickman, 2007). Yet leadership at these institutions weighed these risks quickly, or possibly not at all, and decided to move forward. One interpretation is that these initial institutions felt the potential

benefit to their brand outweighed any possible negative implications that may develop. In other words, regardless of how MOOCs evolved, their college or university involvement would be recognized as bold or even trailblazing.

Another possible interpretation is that administrative leadership viewed their institutional brand as so strong that any unanticipated negative outcomes could easily be countered by the strength of their existing brand and reputation. When reviewing the group of initial colleges and universities who engaged in MOOCs, it is impossible to discount that these were already well known, elite institutions. When classified within the Carnegie Classification, the early MOOC sponsors fell primarily in the more selective (MS), medium sized, four year (FT4) categories.

Therefore it is possible that these elite-level institutions have, as part of their institutional mission and vision, a reputation to uphold regarding leading innovative experimentation within the industry. As such they likely have a higher threshold for uncertainty, or even failure, when undertaking new innovation initiatives. For example, if these institutions attempt a new endeavor and it does not work out as anticipated on the first (or even second,) try, it may not be as overly damaging to their institution as it might to a lesser-ranked school. For instance, at higher-end institutions (such as the ones leading the MOOC charge) any potential financial loss could likely be fairly easily mitigated as they operate from a stronger financial foundation than the smaller, less prestigious institutions do.

Why Reputation Matters

The study data revealed that an institution's primary motivation to support and sponsor MOOCs was believed to be the enhancement of the institutional brand and/or reputation. Data also revealed that the early set of MOOC providers was comprised of elite, prestigious - often

Ivy League - institutions that were rushing to develop MOOCs in order to leverage the potential reputational benefits. Why would high profile institutions with strong brand identities be driven to assume the risks and unknowns of trying out a burgeoning education innovation without a sense of the potential impact or outcome? Why does reputation matter, and in particular, why does it matter to elite institutions?

Prestigious academic institutions have spent decades - even centuries - building and securing their brand reputation. A review of institutional mission statements of institutions involved in MOOCs reveals brand attributes built around concepts and values such as “bold”, “inquiry”, “innovative”, “academic visionaries” and “intellectual curiosity”. This is not to say that mid and lower tier institutions do not share similar values, rather that the expectation level for the elite-level schools to innovate is higher (due to their historical reputation) than others with less brand recognition and reputation. Keeping and maintaining their reputation requires constant innovative practice, even when there is risk.

In addition, the decision criteria for institutions at this elite status differ from those in the middle and bottom tiers of higher education. Due to decades of cultivation and stewardship, these more elite institutions are able to make decisions regarding new programming and practices based solely on their mission. In addition, those that operate within the higher tier are able to take greater risk with new innovation. In a way, they stand to risk *more* if they do not experiment with new innovations than if they do try and subsequently are unsuccessful. The mission alignment is the in *trying*, not necessarily the success of the specific innovation.

Most middle and lower tier institutions have to consider significantly more criteria when evaluating new innovative practices, with a greater emphasis on potential financial implications,

operational bandwidth and resource allocation. Much of the risk associated with new innovative ventures is monetary. Prestigious institutions are typically well funded, which allows them to not only try out new innovative practices, but to invest in new resources in support of success. For instance, Harvard has recently invested in the creation of a multimedia studio to support high-quality audio/video capture of lectures and online teaching components (Bombardieri, 2014). This investment reinforces publically their commitment to the high-level digital teaching and learning material.

Lastly, higher tier institutions are not immune to competitive pressures - both real and perceived. As the earliest set of MOOCs were developed by faculty from within a few spotlight institutions, there was perceived pressure to “keep up” by other peer institutions. While some colleges and universities declined to get involved in MOOCs during this initial phase (Kolowich, 2013b), many within the same peer set quickly developed and offered MOOCs in rapid succession. Not only did institutions not want to be left behind, they felt the need to associate their brand with a perceived forward-moving innovative practice.

Political Influence

Additionally, the complex and highly political involvement of governing boards may combine with competitive drivers to form a unique set of pressures have influenced universities to leap quickly into the MOOC landscape. Just at the time MOOCs were blazing into the industry’s consciousness, a leadership controversy was brewing at the University of Virginia. Over late spring/early summer 2012 university president Theresa Sullivan suddenly submitted her resignation citing “philosophical differences” with the university’s board (A. Rice, 2012). An email exchange released in the media between board members seemingly indicated that the root

of these differences related to board frustration over university leadership's reticence to jump quickly into MOOCs and other online initiatives (Jaschik, 2012; A. Rice, 2012).

While President Sullivan was subsequently reinstated, the vivid disconnect between the university and its governing board was publically, and quite dramatically, documented. The educational industry watched the controversy closely, with a worried eye towards potential implications for their own campuses. The complex relationship that mostly volunteer governing boards have with university leadership can weigh heavily in large-scale strategic decisions. In 2012/2013, MOOCs were not only widely discussed in academic publications, but they were also mainstream media darlings. As evidenced by the situation at University of Virginia, exposure to speculative articles about the potential of MOOCs pressured some governing groups, and academic leadership, to possibly move more quickly than they typically approached new strategic initiatives.

One study participant specifically noted the influence that the UVA debacle had on his institution and their subsequent MOOC involvement. "[We got involved] because 1) they wanted to learn about MOOCs and 2) the president of the U of Va was fired for not having an Internet strategy." While the exact specifics of the president's firing (and subsequent reinstatement) are not quite that simple - UVA's very public crisis illustrated that major universities believed that things of great consequence and urgency were at stake. And as MOOCs continued to dominate the media, they become a focal point for many universities looking to prove their innovative prowess.

A review of news articles published during the early timeframe illustrates the dramatic increase of colleges and universities who not only rushed to try MOOCs, but actively sought

publicity for their burgeoning efforts (Kolowich, 2013c; Lewin, 2012b; Young, 2013b). Eventually even UVA moved into the world of MOOCs, with an initial offering of three MOOCs only a short year after the aforementioned leadership crisis (McNair, 2013). Notably, the majority of institutions delving into MOOCs were focused on the production side (offering of courses) with a significantly smaller subsection publically revealing their exploration of other integration opportunities - such as credit or degree granting (Belkin, 2013; Kolowich, 2013c).

Pedagogical Implications

The second major finding was unexpected in terms of the original intention of this study. My primary focus was intended to be on the impact of MOOCs on institutions and higher education as an industry, not on significant pedagogical shifts in the traditional classroom environment. Yet this study uncovered important implications on the main pedagogical mission of the university, the classroom and its professors as a result of instructor and institutional involvement with MOOCs. More specifically, this study revealed that MOOCs have pushed pedagogical issues back into the forefront. From MOOCs, faculty found ways to shift their classroom teaching in ways believed to improve the classroom experience and create more interactive learning opportunities for students.

The pedagogical impact can be observed in four unique areas of classroom teaching; (1) data-feedback, (2) colleague instructor collaboration, (3) the enhancement and the use of new media resources within the classroom and (4) reexamination of the credit hour. Neither the participants nor the researcher anticipated these pedagogical shifts on the onset of the study, yet they were prominent themes that arose through documenting the MOOC experience. While neither the media nor early research focused on pedagogical implications, the lessons learned by

early MOOC faculty may have a lasting impact on instructor's pedagogy and their discussions regarding teaching and learning at their home institutions.

Data and Feedback

Instructors who seek to improve teaching and learning require meaningful data regarding best practices and student behaviors. This data is primarily gathered through course assessments that historically have varying degrees of validity or depth of information. Narrative feedback from students can help improve a course over time, but results vary and are hard to quantify. In addition, data sets are typically modest in size and not required, which provides variable levels and amounts of feedback.

The technological structure of MOOCs, on the other hand, has provided new access to deeper sets of data regarding learning behavior and student engagement. For instance, instructors analyze the MOOC metrics to see where students struggled (based on video reviews, quiz re-takes) and where disengagement may have occurred (screen closures, task completion rates). They can then tailor the course content to try addressing these problems, and improving completion. One participant noted how the data from MOOCs has created opportunities to identify intervention opportunities within content areas.

For example on my campus, the data from our calculus MOOC is being used to understand when people hit a trigger point that if they don't understand one concept they will struggle moving forward. Creating moment where intervention is necessary is critical.

In this case, MOOC data was used to determine patterns regarding learning behavior on specific topics that then were used to predict where a student may fall behind or be in danger of dropping out of a course all together. This specific data is used to redesign coursework and build in opportunities for direct follow-up, which is all aimed at catching students before they fail.

Another major difference with MOOC data over feedback from more traditional course assessments is the sheer volume of aggregated results. The data points available as feedback from MOOCs, both formal and informal, can number into the hundreds of thousands. For example, one professor still actively utilized the backed-up copies of her first MOOC discussion forums. Within them she found valuable feedback and insight into areas that students struggled with, as well as themes on student feedback and inquiries. Due to the size of her original MOOC (over 1500 registered students) she was not able to review all feedback while the course was live and in session. But through the archives she can probe more deeply into the data as she continues to develop and refine future courses.

Significantly larger than traditional classrooms, the data from MOOCs provides instructors with deeper insight into what works – and what does not work – within a specific course. One instructor expanded on the benefit of access to MOOC metrics from which to examine his course's efficacy.

[MOOCs have] provided me an ENORMOUS base of students against which to judge efficacy of instructional approaches and assessment tools -- far more than ever before. Helped me appreciate the points students find most confusing. Made me increasingly interested in online content and use of classroom time for active learning rather than lecturing.

The massive size of MOOCs provides instructors greater opportunity to experiment with revised teaching and learning approaches, with a fairly immediate access to a large amount of feedback on efficacy.

A comprehensive review of student learning data from MOOCs can be made applicable to other courses, and the resulting pedagogical implications can impact both online and on-the-ground teaching and learning. As discussed in the previous chapter, data from MOOCs that

identify where students got “hung up” on a concept (evidenced by multiple video reviews and/or incomplete concept assessments) can then be applied to on-campus course framework as the professor can shift more instructional focus on the more difficult concepts. Combined with traditional student course assessments, instructors are able to use the aggregated data to make significant alterations to their courses in order to improve content clarity, increase student engagement and raise overall course completion.

Colleague Collaboration

Traditional on-campus courses typically are led by an individual professor, yet very few MOOCs were offered by only a single instructor. Instead, the document review revealed that most MOOCs were developed by a team consisting of numerous content experts and academic technology specialists, and were taught by multiple instructors. In addition to same-institution collaboration, many MOOCs were developed and co-taught by professors from similar disciplines but different universities. This resulted in courses that were richer in content, as each instructor brought his or her own critical perspective to the coursework.

MOOCs moved so quickly during the beginning stages that they required an expedited timeframe in which to conceptualize, develop, create and produce content. As previously discussed in chapter four, faculty found the MOOC development process both intensive and time consuming. Therefore it is possible that course collaboration with multiple academic colleagues was simply born of necessity in order to get the work completed. “Many hands made lighter work” commented one participant who created a MOOC with three other university colleagues, including graduate teaching assistants.

Yet it is also possible that faculty viewed the unique structure of MOOCs as a new way to collaborate proactively with colleagues on areas of shared academic passion. Why and how faculty collaboration manifested was not revealed in the data. But what is clear is that the benefit of this collaboration was felt both personally and professionally by the faculty. One participant found the intense collaboration one of the highlights of his MOOC experience, noting “perhaps the greatest benefit wasI collaborated closely with six colleagues for more than seven months. That was awesome!” MOOCs opened new pathways for collaboration, sometimes over an extended amount of time, which is often difficult within the normal university schedule and structures.

Another interviewee found personal enjoyment in the collaborative process of creating a MOOC with another colleague within the medical school. Yet beyond just the collegial experience, they also created valuable content as a result of the collaboration. After the MOOC was completed (although they both have future plans to offer the same course again) each of those instructors had access to the MOOC content independently to use as part of other courses they taught. For example, the interviewee reported that she intended to offer an on-the-ground course that was similar to the one they developed as a MOOC. But since her colleague will be on sabbatical, she intends to use her colleague’s lectures - though video - as a major component of the course curriculum. She believed this integration would enrich her course and provide the additional perspective of her colleague to the students who were not able to take a class directly from the other instructor.

In addition to inter-campus collaboration, MOOCs offered new opportunities to partner with academic colleagues from various institutions across the country - even internationally. This specific type of curricular and instructional collaboration is typically difficult within traditional

on-campus courses unless there is visiting faculty in residence. Yet because of the structure of many MOOCs, faculty now have established and/or strengthened relationships with external colleagues through the development process. One participant noted how the experience “opened a dialogue with instructors at other campuses” that he found highly valuable for his discipline. Additionally, the shared access to new digital media that was developed in partnership with external colleagues can be leveraged in their respective classrooms.

Not only did the faculty personally benefit from the collegial collaboration across institutions, but the use of MOOC videos allowed faculty to bring their colleagues “digitally” into their courses as virtual guest lecturers. This use of pedagogical collaboration born from MOOCs, yet leveraged in on-the-ground classrooms, benefits students through exposure to a wider range of high-caliber faculty and perspectives as part of their education.

New Media and Technology

The format of most MOOCs recommends short, narrowly-focused ‘chunks’ of video content that are followed by online, multiple-choice “test for understanding”. While the use of ‘short lecture, test for understanding, repeat’ format was deemed not quite feasible in an in-classroom setting, the shorter, narrower video format has been successfully integrated into classroom teaching post-MOOC. Designed to appeal to multiple levels of MOOC learners, this approach provided a fresh perspective from which to structure content within a lecture or course. The adoption of similar multimedia and video models (like those introduced by MOOCs) within the classroom environment was immediate.

I no longer lecture. My students now watch my lectures in modulated form online. Class time is completely spent on problem solving, practice, and labs. My lectures are better quality than when I delivered them in person and, when I've surveyed students, the vast

majority (85-90%) prefer to watch the lectures on their own time. The flipped classroom makes a huge amount of sense now that it's technologically possible.

Instructors can direct students straight to the specific content they may need to review. This offers a more individualized experience and is a vast improvement over previously used long-form lecture videos, where students had to re-watch entire lectures just to review one or two specific concepts.

By using technology differently within the classroom, professors are able to better capitalize on their face-to-face instruction time to interact with their students. The smaller “chunks” of video content can be streamed (either before or during class). Then the instructor can use class time to engage the students in focused discussion and discourse on those topics, before moving on to the next content block. The integration of technology within the classroom is not a novel concept - but MOOCs have provided a new way to think about alternative ways to utilize technology in teaching.

New uses of technology to enhance the classroom experience is endorsed by the White House within their 2013 initiative to decrease the time and cost of higher education. The use of blended technology, such as MOOCs, is specifically noted in President Obama’s plan as one way the industry may improve the path to “redesigned courses that integrate online platforms (like MOOCs) or blend in-person and online experiences can accelerate the pace of student learning” (“FACT SHEET on the President’s Plan to Make College More Affordable,” p. 1). While none of the participants specifically noted this governmental initiative in their MOOC experiences, the initiative was promoted widely during the same time period as the cycle of this study.

Value of the Credit Hour

Reexamination of the credit hour is another potential shift in pedagogy that has surfaced as a result of early MOOC experiences. The credit hour and seat time have long been held as the standard to measure learning. Yet recently there is an increasing debate about this strict use of the credit hour to structure courses and programming, as new and alternative structures are being explored. Most common at universities who are exploring better ways to serve nontraditional students, shorter courses and multiple entry points are some examples of different ways to offer degree courses outside of the traditional quarter or semester model. MOOCs, mostly between six and twelve weeks in length, brought this potential shift to the surface for some participants. An interviewee on the verge of retirement reported that his MOOC experience made him question the wisdom of this traditional model to which he had been bound for length of his career.

The most important single thing [I learned from MOOCs] is that our regular courses should be shorter, like MOOCs. I'd say that's true for the one I was in and true for other MOOCs that I know about, they do the best when they are, say, for six weeks or for two months where our typical semesters are normally 13 or 14 weeks. The semester is too long. What you can do in the MOOC and cover in 6 weeks - you can really sustain a very high level enhanced interaction around some subjects. But when it goes on beyond that people get exhausted and I think that's just as true for residential students, as it is for MOOC students.

This specific type of teaching reassessment would not have been possible without the MOOC experience offering a structured way to explore alternative delivery models.

This finding is similar to growing interest in reevaluating the traditional credit-hour methodology of learning assessment and advancement. An increasing number of institutions are beginning to explore competency-based learning as a viable option for non-traditional (and traditional) learners. Not necessarily a new concept, competency based courses “unmoor” learning from a strict schedule or credit hour requirement (Fain, 2014). Instead of seat time,

students move through learning activities with the support of faculty (acting as mentors) at the student's own individual pace – both quick and slow – with completion depending on when they satisfy the specific agreed-upon competencies for a specific domain.

One leading model is that of Western Governors University (WGU) who have been offering competency based degree programs since 1997 (Kinser, 2007). In President Obama's previously discussed initiative to lower the cost of higher education, WGU's approach to supporting nontraditional learners was specifically noted as an innovative model to explore in the future. And even more recently, Southern New Hampshire University announced a new "\$10,000 bachelor's degree" (Fain, 2014) that relies heavily on competency based learning, and is offered fully online. While these evolving credit models still have their skeptics, the educational industry is watching closely to see how they too might alter traditional structures going forward.

Pedagogical Reexamination

As MOOCs were first entering the landscape, many were dismissive of their ability to impact classroom teaching and learning (Rees, 2013; Vardi, 2012), although some early industry watchers did foresee a strong, positive, pedagogical impact as a result of the 'flipped classroom' (Young, 2013c). Most media focused on possible implications on education in general (Jonas, 2012; Kolowich, 2012b; Skiba, 2012), as a result of these huge, free, open courses. Early conversations on MOOC outcomes were primarily about student learning and assessment, not necessarily on instructional practice (Rivard, 2013c).

It is only very recently that scholars have begun to research and discuss the larger implications of MOOCs on core teaching practices (Hollands & Tirthali, 2014; "The Potential of

MOOCs to Impact Face-to-Face Teaching,” 2014; Young, 2013c). In addition to the concrete changes made to their own instructional practices, participants also noted new pedagogical discourse taking place at their institutions as a result of their MOOC experiences. Faculty felt encouraged to talk about their experiences, and have expanded upon this opportunity by presenting at panels and conferences both about their specific MOOC experience and the pedagogical implications.

One professor, from a small liberal arts college, believes her MOOC experience – and the experiences of her peers – will continue to stimulate critical reexamination of pedagogy with and without technology.

I’m excited about the MOOCs because it’s taking everything we were doing hidden in our classrooms, and it’s bringing it out into the light. Once it’s out in the light, I cannot imagine we are not going to do better, and better, and better. When it’s hidden behind walls, there’s very little that can be done to improve what we’re doing. Once it’s out there in the light, and you’ve got 8,000 eyes on what you’re doing, or 25,000, or 150,000, or whatever it is, it really changes the ballgame..... it’s going to even allow us to individualize support for students even in more traditional institutions.

To this professor, and to others involved in developing and teaching the early round of MOOCs, their experience was not limited to the online MOOC. These instructors believe that the takeaways from the experience were not about online teaching, or even technology-enhanced teaching. Simply put, the lessons to be learned from MOOC just have wide-spread implications for *teaching*.

When reflecting on their motivations to try MOOCs, none of the participants entered into the experience with the expectation that they would overhaul their pedagogy. Rather, these early pioneers entered into the experience with little or no expectations – thus leaving themselves more open to the discovery process. The study revealed that these early instructors were not only

willing to experiment with MOOCs, but that they were reflective practitioners willing explore the implications of the experience on areas outside areas directly relating to MOOCs.

Early Adopters to Pedagogical Pioneers

Initially, this study was designed with the intent to identify early adopters of MOOCs and subsequently examine their experiences through the lens of Everett Rogers' theory of Innovation Diffusion. Early research, tracking of MOOC trends, and unscientific narrative data appeared to indicate that MOOCs might fit within the cycle of innovation diffusion, and that the time period of the study would correspond with the early adoption phase. Further, the faculty and administrators who were involved with MOOCs may be able to be classified as early adopters - a category of the innovation diffusion process marked by their rapid adoption rate early in the innovation process, and "high social status" among their peers (Rogers, 1962).

While Rogers' theory of innovation diffusion is primarily used in product and technology adoption, there appeared to be early indicators that MOOCs (as an educational innovation) might fit within this adoption schema. As previously discussed, the institutions involved with early versions of MOOCs were primarily elite and prestigious institutions that had broad name recognition and significant peer influence (as a brand). This fact, combined with the technological delivery model at the heart of MOOCs, led this researcher to explore the phenomenon using Diffusion of Innovation as a potential framework.

Although this study begun by categorizing instructors as early adopters - the data does not indicate that this is ultimately the best narrative for these early MOOC innovators. Early adoption, by Rogers' original definition, is contextualized by an individual's relationship to the technology that they are utilizing. MOOCs are differentiated from other online initiatives by a

delivery platform and unique educational approach that is rooted in technology. But the data showed that the early users profiled instead had a relationship with the experimentation and innovation process and potential offered by MOOCs, not necessarily the technology that supported it.

These early users are better defined as innovative pedagogical pioneers.

This data from this study indicated that those individual faculty members who chose to get involved with MOOCs at the early stage were themselves self-selecting to be innovators. Further they were choosing to experiment with MOOCs for both personal and professional reasons, in response to an organizational opportunity that afforded itself.

As previously reported, well over half of the participants were actively encouraged to try MOOCs by various administrative forces within their institution. As institutions sought to align themselves with MOOCs, they incentivized faculty participation through some funding, but primarily by offering technological support and resources. The majority of the participants had not been actively involved with online learning prior to trying MOOCs, but with the incentive of additional technology resources many felt it was worth it to get involved. One interviewee admitted that she initially agreed to create a MOOC only because it would allow her greater access to video resources.

I wanted the lecture videos to use with my in-house students....for them to use for review and whatnot. With MOOCs, the video support...I thought that that's really a good resource [that the institution is offering] so in a sense I was going after those videos. This is a way that I could make the videos

She entered into the experience wanting full lecture videos but instead realized that the shorter, content-driven “snippet” videos recommended for MOOCs actually worked better for her

students. What started as a way to utilize new resources - incentives for MOOCs - morphed into a new course structure and approach to teaching.

The hallmarks of these pedagogical pioneers is further illustrated by their willingness to assume the unspecific risks associated with early trial - as well as to actively engage in reflective learning following the MOOC cycle. They overwhelmingly entered into the experience “excited to try something new” and with “no expectations – just want to see what happens.” Following the experience they were able to extrapolate improved ways to organize and teach that could provide a more interactive, engaged learning experience for the student.

Additionally, these pioneers have been vocal about their experiences and (presumably) the benefits as a result of developing and teaching a MOOC. Eighty-eight percent of respondents continue to actively engage in conversations within their home campus about their MOOC experience. In addition, 70% have participated in panels or given presentations and 76% have spoken publically within the mainstream media regarding their reflections on their MOOC experience. This type of dissemination regarding their personal experiences – specifically the pedagogical impact – is a modified version of innovation diffusion.

Organizations, especially those mired in hierarchy like typical higher education, need internal leaders like these pedagogical pioneers to socialize and support innovative change. Internal leaders that emerge from *within* the system can create, refine and socialize innovations from the bottom up in support of broader, institutional change. The consequence of pedagogical innovation by individual instructors perusing their own instructional goals may mean that institutional support of technology is necessary to encourage further critical examination of pedagogy.

Limitations

This study examined the motivations and implications of MOOCs as reported by faculty members who developed and taught MOOCs during an initial round of offerings. There are several possible limitations to this study. First, the motivations and perspectives of college and university administrative leadership were not solicited. While many faculty respondents made assumptions regarding motivation and impact, the data would be strengthened with administrative validation. Further, without administrative perspective the impact of pedagogical changes within the classroom is limited to the individual faculty's classroom. An expanded participant pool to include administrators and students would provide a deeper understanding of the wider institutional implications of the MOOC experience within the classroom.

Lastly, all respondents self-selected to participate in the research. In addition, almost all the respondents reported positive initial MOOC impressions and satisfactory to excellent post-MOOC experiences. Counter narratives from instructors with less satisfactory or negative experiences would balance the data and provide a more comprehensive illustration of the MOOC instructor perspective.

Opportunities for Future Research

This study implies that opportunities for further research fall into three categories; change diffusion, technology enhanced teaching/learning and continued examination of credit-hour alternatives.

There is a need for more research on the diffusion of the pedagogical change process within institutions (i.e., what are the characteristics of the propagation?) As MOOCs may have

generated an extended effect on pedagogical practice in higher education, further study is warranted to examine any long-term impact, as well as how exactly it was diffused (by program? school? discipline?) A longitudinal study that tracks pedagogical shifts over time would provide greater insight into the impact of bottom-up institutional innovation.

Further study on the different variations of “flipped classrooms” and their relative effectiveness is also a burgeoning area that requires additional examination. Focus on the effectiveness of different uses of technology (length of taped lecture, use in and out of classroom, structure and format) on both instructor and student satisfaction would provide insight into targeted areas for future educational growth. Several respondents noted the effectiveness of the short (2 minute) content-specific video, followed by a multiple-choice assessment that requires completion before moving on. Interest was expressed in how this format could be extrapolated into a more traditional classroom environment. Further examination of the effective components of this model, combined with alternative structures of assessment within the classroom, might provide innovative new alternatives in technology enhanced teaching and learning.

Finally, new and continuing research is suggested around issues relating to the reexamination the strict credit hour structure, as compared to competency based learning. There is still an ongoing debate regarding how MOOCs, as an educational innovation, may be used for college credit. Currently only a small handful of institutions, along with ACE, are on record stating they will offer credit for some MOOCs. It is anticipated that more institutions will continue to explore ways to incorporate MOOCs into their curriculum or use them as standalone credit-bearing options. Research regarding this evolution will help contextualize the potential

shift from credit-hour standards to competency based or subject-matter mastery. This shift would have major implications for issues of access, cost and degree pathways.

Closing Remarks

During the time span of this study, MOOCs have experienced a rapid shift in perception within the marketplace. Articles from earlier in the cycle (2012-2013) heralded the potential of MOOCs to dramatically increase the reach of higher education (Jonas, 2012; Lewin, 2012a) as well as cut the cost and time to degree for students (Fain, 2012). A few bold academics even envisioned a future where consolidation of high caliber courses, now offered as MOOCs, could put a majority of the existing colleges and universities out of business (Lucas, 2013). With little research or understanding on the impact of MOOCs, there was little information available to inform institutional decision making aside from this media and industry speculation.

Fast-forward to 2014 and the rhetoric is much more conservative. Media reports no longer make brash predictions regarding the future of MOOCs in regards to the dissembling of existing educational structures. Articles tend to be more cautious, if not slightly critical – which is a notable difference in both tone and approach. Additionally there is now a burgeoning field of research that has begun to examine MOOCs from multiple angles, with a specific focus on student outcomes and learning. Further, a large amount of attention is focused on trying to understand the high rates of attrition, and towards establishing metrics to help gauge student success (Breakwell & Cassidy, 2013; Rivard, 2013b).

MOOCs have been categorized as an educational disruption. As such, they were touted as a potential solution to a myriad of problems facing higher education (such as increasing costs, issues of access and assessment, and tightening of legislative fiscal support.) But in reality

MOOCs are neither a solution nor an answer to any of these problems. Instead, they have shown themselves to be loud, bold and visible symptoms of the greater issues.

With increasing clarity, MOOCs can be seen as a portal through which we can better identify and examine the issues straining our educational systems. The hype and attention on MOOCs has spotlighted weaknesses in areas of pedagogy, student and instructor engagement and inconsistencies relating to technological integration within teaching and learning.

Furthermore, MOOCs highlight the increasing need by institutions to distinguish themselves within the crowded marketplace, as colleges and universities seek reinvention and stability. As the context changes (students, fiscal, access, structures) so too must education in order to help uncover dynamic solutions to the shifting challenges facing the industry.

Therefore MOOCs, it turns out, are not a one-dimensional phenomenon. Although predicted implications may not have come to pass, MOOCs - as an educational innovation - are still under evaluation and refinement. While they may not be a 'silver bullet' solution to the myriad of problems plaguing academia, growing research indicates MOOCs may still be powerful force for change for reasons altogether unanticipated. And, with time, MOOCs may prove to be a highly valuable disrupter of pedagogical practices within higher education.

List of Appendices

Appendix A: Online Questionnaire

MOOC Early Adopters - Faculty
Consent to Participate
<p>*1. You have been invited to participate in a research study on early adopters of MOOCs (massive open online courses). The purpose of the research interview is to gather first-hand narratives regarding the early decision-making and process development that contributed to early adoption of MOOCs through the development and offering of MOOCs to the public. This study is conducted by Joanna Gerber, Doctoral Candidate, Department of Education and Information Studies at the University of California at Los Angeles.</p> <p>This questionnaire will take approximately 15-25 minutes of your time. You will be asked to complete an online survey regarding initial incentives, influence(r)s, challenges, implications, and possible futures of MOOC adoption. At the conclusion of the online questionnaire, participants will be given the opportunity to opt-in for further participation in the study through an additional personal interview.</p> <p>Your decision to participate or decline participation in this study is completely voluntary and you have the right to terminate your participation at any time without penalty. You may skip any questions you do not wish to answer. If you do not wish to participate in or complete this questionnaire, just close your browser.</p> <p>Your participation in this research will be confidential, unless you give express written permission to identify such information as your institution or specific MOOC course name (s). The data will be reported in aggregate as a qualitative study. Although your participation in this research may not benefit you personally, analysis of this data using Everett Rogers five stages of innovation diffusion may reveal interesting or useful patterns or predictive models that could be used by institutions to assist with future MOOC adoption.</p> <p>There are no risks to individuals participating in this survey beyond those that exist in daily life.</p> <p>At the end of the online questionnaire, participants can enter their email address to receive a \$10 Starbucks Gift Card as a thank you for your participation in this research project.</p> <p>If you have any questions you can contact either myself and/or my faculty sponsor at the contact avenues listed below:</p> <p>Joanna Gerber</p>

MOOC Early Adopters - Faculty

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If you have questions about your rights while taking part in this study, or you have concerns or suggestions and you want to talk to someone other than the researchers about the study, please call the OHRPP at (310) 825-7122 or write to: UCLA Office of the Human Research Protection Program, 11000 Kinross Avenue, Suite 211, Box 951694, Los Angeles, CA 90095-1694

Please print a copy of this consent form for your records, if you so desire.

I have read and understand the above consent form, I certify that I am 18 years old or older and, by clicking the submit button to enter the survey, I indicate my willingness voluntarily take part in the study.

MOOC Background

The first set of questions explores background information regarding your role with online education and MOOCs.

2. How many years have you been teaching at your current institution?

- Less than 2 years
- 3-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- Over 21 years

MOOC Early Adopters - Faculty

3. How many years have you been involved with the following aspects of online teaching?

	None	1-2 Years	3-5 Years	6-10 Years	10+ Years
Technology Integration in classroom teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing blended learning and/or hybrid curriculum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teaching blended learning/hybrid courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing fully online curriculum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teaching fully online course(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

4. Where did you initially hear about and/or learn about MOOCs?

(Check all that apply)

- Higher education industry publication (either online or in print)
- Mainstream publication (either online or in print)
- In a formal campus/institution meeting
- In an informal campus/institution gathering or conversation
- In a conversation/correspondence (either in person or online) with a fellow faculty member from your campus
- In a conversation/correspondence (either in person or online) with an administrator and/or staff member from your campus
- In a conversation/correspondence (either in person or online) with a faculty colleague from another institution
- In a conversation/correspondence (either in person or online) with an individual not associated with higher education (ie, general public)

Other (please specify)

5. What was your first impression of MOOCs?

MOOC Early Adopters - Faculty

6. How influential do you think the following external forces were on your decision to develop/teach a MOOC:

	Not influential at all	Not very influential	Somewhat influential	Very Influential	NA
Higher Education Media (blogs, publications, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mainstream Media (news outlets, newspapers, online news, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Academic Publications (journals, scholarly articles, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Funding Organizations (Gates Foundation, Lumina, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Academic Colleagues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Administrative/Institutional Leadership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>				

Initial MOOC Development

You were sent this survey because research indicated that you were an early adopter of MOOCs as you are one of the first faculty on record to offer a MOOC course to the public. The following set of questions relates to the very first course you developed and offered as a MOOC.

MOOC Early Adopters - Faculty

7. Please indicate your level of agreement with each of the following statements regarding your primary motivation to develop a MOOC?

(I WAS.....)

	Completely Disagree	Generally Disagree	Generally Agree	Completely Agree
Interested in trying out a new/innovative delivery modality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interested in online teaching/learning in general	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concerned about the limited reach of the current academic structure(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encouraged to develop a MOOC by a faculty/university colleague	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encouraged to develop a MOOC by university administration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Able to use an existing online course I had already developed with little modifications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

8. What was the first ONLINE course you developed and taught?

(Also, when did you first offer the course?)

9. What was the first MOOC course you developed and taught?

10. When (month/year) did you begin developing this MOOC course?

11. When (month/year) was your MOOC first offered to the public?

12. Why did you develop that specific course as a MOOC?

MOOC Early Adopters - Faculty

13. What were your expectations of the experience prior to teaching your first MOOC?

14. Rate your overall level of personal satisfaction with experience offering your first MOOC:

Unsatisfied – failed to meet my expectations

Satisfied – met my expectations

Highly satisfied – Exceeded my expectations

15. Please elaborate on how your first MOOC experience left you feeling [Q13]?

16. Did you offer your first course in partnership with a third-party platform?

- Yes, Coursera
 Yes, EdX
 Yes, Kahn Academy
 Yes, Udacity
 Yes, Udemy
 I did not offer using a third party platform

Other (please specify)

17. How many MOOC courses have you now developed/taught since your initial MOOC?

Institutional Perspective

The following set of questions relates to your perceptions regarding your institution's response to the very first MOOC that you developed and offered.

18. How INVOLVED was your campus administration in your decision to develop/offer MOOCs?

- Not involved at all – knew/notified after MOOC was finalized
 Involved Slightly – I notified them of my intent
 Involved – they publicly endorsed my MOOC development
 Highly involved – they encouraged and funded MOOC development

MOOC Early Adopters - Faculty

19. How SUPPORTIVE was your campus of you being an early adopter of MOOCs?

- Highly supportive
- Supportive
- Slightly supportive
- Not supportive

Other (please specify)

20. What is your perception of why your campus was [Q19] regarding MOOCs?

21. How, if at all, has your institution's support of MOOCs changed since you developed/offered your first MOOC?

- More Supportive
- Slightly More Supportive
- Neither More nor Less Supportive
- Slightly Less Supportive
- Less Supportive
- Don't Know/Unsure

22. Why do you believe your campus is now [Q21] of MOOCs since you initially developed/offered a MOOC?

Challenges and Benefits

The next set of questions examines some of the benefits and challenges of being one of the first to develop and offer a MOOC.

MOOC Early Adopters - Faculty

23. What were some perceived barriers, if any, that you encountered when developing MOOCs?

24. How did you overcome these barrier(s)?

25. What resources, if any, did you receive from your home campus during your development of your first MOOC?

(Check all that apply)

- Technology assistance/support
- Release time
- Financial compensation
- Institutional endorsement/encouragement
- None – I did not receive any resources from my home campus during my Initial MOOC development

Other (please specify)

26. How, if at all, do you feel being an early adopter of MOOCs has benefited your campus? (If you do not feel being a MOOC early adopter has benefited your campus, please enter N/A)

27. How, if at all, do you feel being an early adopter of MOOCs has negatively impacted your campus? (If you do not feel being a MOOC early adopter has negatively impacted your campus, please enter N/A)

MOOC Early Adopters - Faculty

28. What impact, if any, has your experiences as a MOOC early adopter had on your relationships with your colleagues?

- Improved relationship(s) with my colleagues
- I have not noticed any change in my relationship(s) with colleagues
- Damaged relationship(s) with my colleagues

Please share any additional thoughts on the impact MOOC early adoption has had on your relationship(s) with colleagues:

29. What impact, if any, has your experience as a MOOC early adopter had on your personal pedagogical approach?

(If you feel there has been no impact on your personal pedagogical approach, please enter N/A)

30. Is there anything more about your personal experience(s) as an early adopter of MOOCs that you would like to add?

MOOCs in the Future

The final set of questions examines both your personal, and perceived institutional, perspectives on the role of MOOCs in Higher Education now and in the future.

31. Where do you believe MOOCs will be in 2 years?

MOOC Early Adopters - Faculty

32. Reflecting on your personal belief(s) of the future of MOOCs, rank these potential uses from MOST to LEAST potential.

(With "1" representing "Most" potential)

<input type="text"/>	Enhancement of existing coursework (for credit)
<input type="text"/>	For "fun"
<input type="text"/>	Standalone coursework (for credit)
<input type="text"/>	Continuing Education (not for credit)
<input type="text"/>	Increasing access to non credit learning for the masses
<input type="text"/>	Professional Development
<input type="text"/>	Job Training or Retraining
<input type="text"/>	Life-long learning

33. How have you been involved in the ongoing dialogue regarding MOOCs?

(Check all that apply)

- I am involved in conversations on my home campus regarding MOOCs
- I have participated in public panels/presentations regarding MOOCs
- I have been interviewed/quoted in publications regarding MOOCs
- I have submitted/published article(s) on MOOCs
- I have conducted or am conducting research on MOOCs
- I have followed the dialogue through industry and mainstream publications
- I have commented on article(s) regarding MOOCs
- I choose not to engage in the ongoing dialogue

Other (please specify)

34. How has your impression(s) of MOOCs shifted since you first offered your initial MOOC course?

MOOC Early Adopters - Faculty

35. How has your home campus' perspective on MOOCs changed or evolved in the time since your first MOOC?

(Check all that apply)

- The campus is more publically supportive of MOOCs
- The campus is Involved in more MOOC activity
- MOOCs are discussed more frequently on my campus
- There are other faculty members developing/offering MOOCs
- The campus has not evolved or changed their stance on MOOCs
- The campus is less supportive of MOOCs
- The campus is more cautious or reserved about their MOOC involvement
- MOOCs are discussed less frequently on my campus
- The campus has scaled back its investment in/support of MOOCs
- Other (please elaborate)

Other (please specify)

36. If you plan to develop and/or teach MOOCs again in the future, which of the following statements apply?

(Check all that apply)

- I plan to teach the same course as previously taught
- I plan to develop/teach new course(s)
- I plan to collaborate with another faculty member
- I have no plans to develop or teach another MOOC

Other (please specify)

MOOC Early Adopters - Faculty

37. Please indicate both (1) your personal level of agreement and (2) your perception of your home campus' institutional level of agreement with each of the following statements:

	My Opinion	My perception of Institutional leadership's opinion (In general)
MOOCs have the potential to Increase educational opportunities for current undergraduate students, like those at my home campus	<input type="text"/>	<input type="text"/>
MOOCs have the potential to Increase educational opportunities for non-enrolled learners, as continuing education and/or life-long learning	<input type="text"/>	<input type="text"/>
MOOCs should be offered for college credit	<input type="text"/>	<input type="text"/>
MOOCs have the potential to increase access to education for students	<input type="text"/>	<input type="text"/>
MOOCs have the potential to decrease the cost of an undergraduate degree for students	<input type="text"/>	<input type="text"/>
MOOCs have the potential to add value to in-classroom courses at my home campus	<input type="text"/>	<input type="text"/>
MOOCs have the potential to Increase my campus' competitive advantage in the marketplace	<input type="text"/>	<input type="text"/>
MOOCs are a fad and we will not be talking about them at all in five years	<input type="text"/>	<input type="text"/>
MOOCs will play a critical role in the future of Higher Education	<input type="text"/>	<input type="text"/>
MOOCs are still too new to predict how they may or may not impact the future of Higher Education	<input type="text"/>	<input type="text"/>
MOOCs have the potential to Improve the brand awareness of my home campus in the marketplace	<input type="text"/>	<input type="text"/>
Students currently enrolled in an institution should have the potential to receive credit for a MOOC course offered by their	<input type="text"/>	<input type="text"/>

MOOC Early Adopters - Faculty

Institution

Students currently enrolled
in an institution should
have the potential to
receive credit for a MOOC
course offered by another
institution

MOOCs should only be
used to supplement in-
classroom learning and
never as stand-alone
courses

38. Is there anything more about MOOCs that you would like to add?

Thank You

Thank you for your participation in this research project.

39. May I use the real name of your MOOC course in my final report?

- Yes
- No - please create a pseudonym
- Perhaps - Contact me with example of final use

If "Perhaps" please provide your email:

40. Are you interested in participating in a follow-up interview? These interviews will take approximately 45 minutes and will be conducted remotely at a time and date of your choosing.

- Yes (enter email below for further contact)
- No

Email (for interview scheduling):

41. Please enter your email address to receive your \$10 Starbucks gift card as a Thank You for your participation in this survey.

(Please note that your email will only be used to send the gift card, and will be disassociated with your survey responses during data analysis.)

Email Address:

Appendix B: Interview Protocol

1. How do you feel MOOCs are or are not different, as an innovation, from existing online learning programs?
2. [In the survey you mentioned] that university administration was one of your primary motivators for trying MOOCs. Can you tell me more about how that evolved and what that looked like on your campus?
3. Now that you've done this MOOC, who do you talk to about this experience?
 - a. i.e., Who is your most responsive conversational partner? (For example, is the Dean or Chair interested/engaged?)
4. What would you say (or have you said) to a colleague to encourage and/or motivate them to experiment with MOOCs?
 - a. Would you say anything different to administration and/or campus leadership?
5. What surprised you the most about your experience with MOOCs?
6. [In the survey you mentioned] that you were surprised by the level of engagement with the MOOCs students. Can you tell me more about what that looked like?
7. What impact do you think your MOOC experience had on your personal pedagogy within the classroom?
8. More specifically, what are the ideas that emerged from your MOOC experience that could be informative to a campus-wide discussion about improvement in the area of;
 - a. Student Outcomes?
 - b. Access?
 - c. Student Engagement?
 - d. Integration of technology in general instruction?
9. Is there anything you would like to add about the larger educational implications of MOOCs? Anything you would like to add about MOOCs and/or your experience in general?

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