The Phenomenal MOOC
Sociocultural Effects of a Marginal Learning Model

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Four years after Stanford University’s Computer Science 271, taught by Dr. Sebastian Thrun, enrolled 160,000 students and became the archetype of what popular culture considers a massive open online course (MOOC), discussion of the acronym remains widespread and disparate. MOOC, in this chapter defined as what Rodriguez (2012) classified as an xMOOC, has evolved into MOOC 2.0 (Thrun, 2013a), MOOC 3.0 (Sandeen, 2013), returned back to MOOC 2.0 (Scott, 2014), been buried (Borden, 2014), and been given a thriving bill of health (Pratt, 2014), and even expanded to MOOC 4.0 (Scharmer, 2015). Both the abundance and vacillation of MOOC prognoses signify that the MOOC is an emerging concept that researchers and practitioners alike are struggling to make sense of (chapter 1).

Little attention has been paid to the MOOC as an emerging practice or as a reflection of how society conceptualizes and practices education. Lewin's article in the New York Times, “MOOCs, large courses open to all, topple campus walls” (2012), created a torrent of press and publicity. His article was significant because it (a) equated MOOCs to the type of courses developed in the guise of Thrun’s courses, ignoring earlier MOOC designs such as the ones described in chapters 2 and 9; and (b) ignored pedagogy and theory, focusing instead on hype and hope (Daniel, 2012). Since then, there have been numerous debates between education scholars and practitioners and MOOC developers and adherents,
arguing for and against the manner in which scholars, practitioners, and society conceptualize the practice of higher education.

To better understand the impact of the MOOC phenomenon on education discourse, I conducted a Delphi Study, bringing together twenty experts to discuss the past, present, and future of MOOCs, as an agent of change in how society views and organizes education. Through twelve paraphrased quotations from the MOOC literature, experts engaged with one another on the issues around and implications for education in the wake of the MOOC movement. The conversations that emerged from this study provide a unique insight into how experts view the MOOC. In the pages that follow, I report on expert responses that identified four cultural and social implications in how the MOOC phenomenon is changing the manner in which we discuss and practice education. These responses demonstrate that the concept and practice of the MOOC is emerging, and even though a lot of these responses focus on the United States, I hope these are illuminating in understanding the MOOC phenomenon itself.

THE ARRIVAL OF THE MOOC AND ITS CONNECTION TO EDUCATION THEORY AND PRACTICE

Popular MOOC discussion, as first noted from outlets such as the *New York Times* (Lewin, 2012), revolved heavily around anointing the MOOC learning model as a sorely needed revolution (Friedman, 2012) and avoiding a link to existing research or historical precedents in education (Waldrop, 2013). MOOC developers described their work as a random opportunity or a bold experiment (Rodriguez, 2012) while failing to clarify the existence or importance of prior work. Rather, MOOC developers pointed to former hedge fund analyst Salman Khan (2012), whose YouTube videos led to his creation of education venture Khan Academy, as inspiration. Khan himself has chosen not to link his influences to prior educational research or historical theories, choosing to refer to his educational engagement as intuition-based (Khan, 2012). As a result, the MOOC has emerged as an ahistorical event, a learning model whose successes are earned but whose failures must be considered as growing pains (Bady, 2013).

The revolutionary attitude of MOOC developers and adherents in the early days of the phenomenon led to a common refrain presented as fact in light of the learning model: MOOCs would provide the highest quality education from the best teachers in the world (Friedman, 2012), lowering the cost of education while improving student experience and outcomes (Thrun, 2013a, 2013b). From this perspective, the MOOC’s features would allow for its adoption across cam-
puses and communities, rendering middle- and lower-tier courses obsolete and freeing up not only student money but institutional funds as well (Ferenstein, 2013). Thrun went so far as to claim that in the future there would only be need for ten universities, consisting of top professors as actor-producers creating and distributing higher education (Leckart, 2013).

Many of these comments have been denounced by education researchers and practitioners (Bady, 2013); however, such denunciation has not received the same attention as the anticipated positive impacts of the MOOC. While the MOOC can be both heralded and castigated in research-based education discussions, the popular discussion about MOOCs continues to grow and adapt without strong input from critical education voices.

METHODOLOGY

The research protocol used for this study was the Delphi method, a research design created to provide a space for field experts to discuss issues involving a central topic and to spur feedback from one another, forecasting potential outcomes and in some cases reaching consensus (Linstone & Turoff, 2002). In a Delphi study, experts protected through confidentiality discuss a topic through a defined instrument, reacting to the instrument over the course of three rounds, their responses taking into account the responses of others over the course of subsequent rounds. Delphi studies are designed to help gauge the impact of a recent phenomenon, and while many seek to gain consensus and potential future outlooks, its role as a standard for discussion is widely accepted (Linstone & Turoff, 2002). Delphi was used for this study because the MOOC is an emerging practice and technology of which little is known (chapter 1). The Delphi panel consisted of twelve men and eight women and was composed of four of each: MOOC professors, MOOC developers, online and/or distance education scholars, journalists and authors who had published extensively on the MOOC, and political/government voices involved in MOOC discourse.

DISCUSSION

Four specific issues arose in the Delphi study.

A battle between computer science and education theory

At a 2013 presentation for international educators, Sebastian Thrun noted that online learning was a field bereft of expertise, based upon anecdotes and small-sample empirical results but not grounded in what he called “big data”
(Alexander, 2013). This line of thinking, while questioned and subsequently disproven by education researchers (Siemens, 2013a), was evident in early MOOC discourse; the rise of MOOCs came with an ahistorical lens that claimed the learning model was unique and pioneering. To gauge expert response to this lens, Thrun’s quotation was paraphrased for the Delphi study.

In the first round of the study, the twenty experts were unable to come to a consensus on whether or not online education was a field with a history and expertise. Despite the fact that the field has over fifty years of history (Garrison, 2009), twenty-five of which included telecommunications-based distance education (Nipper, 1989), MOOC experts were unable to agree on whether the field that rendered them an expert for the Delphi study was in fact a field of experts and history. The responses of those disagreeing with Thrun’s statement were strong, and the prompt gained consensus in the negative for Round 2. However, those Round 1 statements agreeing with Thrun’s assertion focused on the lack of quantitative data-driven models for online education.

Since 2011, those at the forefront of developing MOOCs have either linked their structures with recent technological phenomena such as Khan Academy (Vanderbilt, 2012), or avoided making a link to the history of education at all (Koller, 2013). Recent scholarship has linked the artificial intelligence and machine learning backgrounds of the primary MOOC developers to the cognitive principles at the foundation of their academic disciplines and in turn extended to how those frameworks merge with existing learning theory literature (Stanton & Harkness, 2014).

Such developments might be ideal if, as Marvin Minsky (1979) put it, the brain happens to be a meat machine. The evolution of educational psychology, generations removed from the dawn of theories of cognition in the 1960s and 1970s, has rendered cognitive learning theory archaic (Siemens, 2013a). While cognitive theory remains popular in computer science and among some educators, the work of educational psychologists and social scientists has identified the limits of cognitive learning theory while using its strengths to create new theories of learning (chapter 3). A theoretical return to ideas of cognitive learning creates a rift in the field of educational research, where a focus on the MOOC phenomenon as a learning model gives precedence to artificial intelligence theories on learning, a field removed from the more psychological theories of the past thirty years. Moreover, the ahistorical attitude of the MOOC movement implicitly invalidates prior education research, discarding prior initiatives and ignoring valuable lessons.
The dismissal of education as a field of study and subsequent re-adoption of cognitive learning theory has already been given prominence in public policy debates. California Governor Jerry Brown, who as Governor is an Ex-Officio Regent for the University of California system, recently pushed for the adoption of college courses designed to run without a professor or teaching staff:

If this university can probe into “black holes,” he said, “can’t somebody create a course—Spanish, calculus, whatever—totally online? That seems to me less complicated than that telescope you were talking about,” referring to an earlier agenda item.

After receiving pushback from UC provost Aimée Dorr, who delivered the presentation, that students are “less happy and less engaged” without human interaction, Brown said those measurements were too soft and he wanted empirical results. (Koseff, 2014, para. 3)

This development is not novel; the State of California has engaged in a number of cognitive-heavy policy initiatives (such as the drafting of SB520 state legislation designed to promote and encourage the development and implementation of scalable online lower-level undergraduate courses). What is unique to the above quotes is Governor Brown’s desire to remove the human element from courses entirely, shown through a belief that such an endeavour would be easier than hard science initiatives such as an astronomy telescope, as well as a desire to measure efficacy through back-end learning analytics rather than what Brown alludes to as soft educational measurements. These and other recent public policy discussions, in conjunction with Delphi experts coming to consensus on a belief that the MOOC could provide solutions to education problems through data mining, shows a societal shift toward learning analytics as preferential data for education policy, data derived from cognitive models of learning.

Despite the rich history of education as an academic discipline and field of research, education discussion and political movement throughout the MOOC phenomenon has largely been driven by outside voices, by individuals who have celebrated their lack of theoretical and pedagogical expertise within the education discipline (e.g., Khan, 2012). In this context, the lack of immediate consensus on the Thrun quotation makes sense, as the social spaces where education has been debated have erased expertise and replaced it with education newcomers with a cognitive worldview and dependent on a specific brand of quantitative data to solidify their theoretical lenses.
Educators fail to find consensus on the purpose of higher education

The following quote from a study respondent reveals a growing conflict in higher education:

> Blah blah blah tenured humanities professor sanctimony. Explain to me how you occupy the moral high ground when your students graduate $30,000 in debt and have no marketable skills.

The superstructure of higher education has been unable to create and align with a unifying purpose for why citizens should engage in higher education. This inability, in conjunction with the rising cost of attendance, has led to a cultural and political backlash against traditional higher education. Higher education authors (Bennett & Wilezol, 2013; Kamanetz, 2010) have advocated for individuals to join the workforce and/or become entrepreneurs rather than enrol in a higher education institution. This sentiment has gained political traction. In a speech designed to promote policy on education, President Barack Obama called for more young people to engage in skills and manufacturing trades in lieu of college, referencing the earnings of a tradesperson as superior to a person with a degree in art history (Horsley, 2014).

The media and policy push away from college has not been readily adopted by learners or families; a recent study on attitudes regarding the purpose of higher education notes a disconnect between politicians clamouring for job skills and STEM subjects, and citizens who see college as a space for developing broader skills that provide a foundation for workforce preparation (Lederman, 2014). Societal beliefs could be due to the longstanding notion that a college education is a ticket to the middle class (Carnevale, 2012), while politicians could see the erosion of the middle class as a reason to focus on trades and skills, either in a collegiate setting or outside of the academy (LeBlanc, 2013).

As tuition and expenses continue to rise, economics will grow as a factor in an individual’s decision making on further education and career choices. While no economists predict that higher education costs will decline, there are several intervention strategies being discussed; in 2014 Oregon and Tennessee lawmakers proposed two years of free tuition to students enrolled in a state community or technical college. In Oregon, the cost of tuition would then be repaid through the graduates’ future earnings (Cooper, 2014). In Tennessee, tuition would be covered by the state after all other financial aid options have been exhausted. In supporting the initiative, American Association of Community Colleges Senior Vice President David Baime noted, “Many of the jobs in our
economy these days don’t require a four-year degree. An associates degree, a two-year degree, or even, in some cases, a one-year certificate . . . give people very good jobs” (FoxNews.com, 2014). The lack of vision and articulation concerning the importance of a college degree from a postsecondary institution has allowed for skills-and-competencies voices to gain a foothold in the debate (Veletsianos, 2014), and without a clear vision or government financial intervention, the decision will become more difficult as costs rise.

Imagining higher education as a space designed for the development of job skills that create employment opportunities marks an historic shift in what society considers the purpose of higher education. Advocates for education that emphasizes gainful employment stress the necessity of employability in today’s evolving society (Thrun, 2013b). Clay Shirky has utilized an historical argument to further this ideology, casting the growth of federal-based education initiatives between World War II and the Civil Rights Era as the “Golden Age of Education,” one that was unsustainable and that has been gone for forty years and thus should be viewed as an aberration rather than the basis for judging education policy and initiatives (Shirky, 2014).

Shirky’s criticism has factual accuracies, but his lens fails to account for the historical push behind the purpose of education (Wagoner, 2004). The purpose of higher education since the mid-eighteenth century has been to produce an intelligent, vibrant, and critical citizenry, and by defining historical political initiatives as an unsustainable golden age rather than the inevitable result of over 200 years of philosophical and cultural thought, abstracts policy from its history and context. Such Shirky thinking provides an opportunity to advocate for initiatives that lessen the importance of education by casting the initiatives as far-reaching rather than expectant of historical progress.

Economics will play an ever-increasing role in the development of higher education

The role of economics in the MOOC phenomenon was highly evident through most prompts within the Delphi study. Discussions across prompts noted the rising cost of higher education, the inability of state or federal governments to offset those costs, and the value of a degree in relation to its financial cost to the student. Many experts opted to advocate for pragmatism in developing solutions to address student debt rather than engage economics in a different fashion, seeing the existing landscape of rising costs and decreasing subsidies as indicative of the future.
One place of economic agreement in the Delphi study was the cost of producing a MOOC. Participants discussed the monetary costs of time and labour to create a MOOC, as well as the time commitment from the instructional team in facilitating the first week of a MOOC. Others furthered this discussion by estimating the point where a MOOC can turn a profit: between its fourth and fifth iteration: “even if the direst prediction of time overhead here is true, a 4x time increase for a version of a course translates to a course reducing the need for human resources starting in semester #5.” This leaves the question of who will pay for the initial iterations of these courses. Much of this money has come from venture capital or institutional endowment: in the second quarter of 2015 Coursera raised $49.5 million in venture capital (Billings, 2015), making the total VC investment in educational technology just under $600 million, nearly as much as was invested for all of 2014. While conversation continues on how these investments will be paid back, the history of venture capital through Udacity shows a desire by venture capital firms to recoup their investment (Garg, 2013).

On top of signature tracks and tier-based pricing, commercial MOOC providers are making money from higher education institutions, both those they work for as well as those who solicit their content. Kolowich (2013) details the relationship between edX and its two institutional customer bases: schools who collaborate to build edX courses, and schools who solicit edX courses for their use:

edX offers its university affiliates a choice of two partnership models. Both models give universities the opportunity to make money from their edX MOOCs—but only after edX gets paid.

... Once a self-service course goes live on the edX Web site, edX will collect the first $50,000 generated by the course, or $10,000 for each recurring course. The organization and the university partner will each get 50 percent of all revenue beyond that threshold.

The second model, called the “edX-supported model,” casts the organization in the role of consultant and design partner, offering “production assistance” to universities for their MOOCs. The organization charges a base rate of $250,000 for each new course, plus $50,000 for each time a course is offered for an additional term, according to the standard agreement.

Although the edX-supported model requires cash up front, the potential returns for the university are high if a course ends up making money. (para. 6)

The example discussed in the Delphi study was edX’s partnership with the California State University system and San Jose State University in particular (Cheal,
2013), a school at the time with budget issues so severe it sought to make $16 million in baseline budget cuts between the Fall 2013 and Spring 2014 semester, notifying department chairs of the change only a few weeks prior to the end of semester (Murphy, 2013). The California State University system publicly subsidizes education institutions, yet a school looking to cut $16 million from its budget outsourced a portion of its academics to Massachusetts-based edX for curriculum and course content, and nearly $28 million in uncontested educational technology funds have been spent on programs and initiatives that have yet to benefit students (Murphy, 2014). While the Delphi panel was unable to agree whether or not the institution of education is a public good, the economics of its public subsidy are a decreasing part of both the student tuition as well as the social discussion.

**Disagreement on definitions of education terms**

The expert Delphi panel encountered a number of difficulties in finding agreed-upon definitions for education and research terms. Within the three rounds of discussion, terms such as *data, open, student, pedagogy, personalization, sufficient, and online education* were used in divergent ways to describe similar variables or phenomena. Historically some have argued that such disagreement stems from education as a moving profession basing itself within the sociocultural milieu of the time (Harvey, 2005), so definitions outside of an educator’s primary discipline would be more negotiated than those within a field of study. However, experts quickly converged on definitions for the business and technological terms used in the study, such as *disruptive technology* and *learning analytics*.

Finding spaces of agreement or disagreement is predicated upon establishing the rules and parameters for a conversation. The Delphi study was designed to create a space for various experts associated with the MOOC phenomenon to freely discuss the social, historical, political and educational impact and future of the MOOC and higher education. This is the traditional method for a Delphi study: experts in a subject have a space to discuss a rising phenomenon amongst other experts, and the panellist design mitigates the levels of expertise so that conversation can begin at a high level (Linstone & Turoff, 2002). The experts chosen for this Delphi study were influential scholars and practitioners tied to MOOCs, but the varying definitions provided by experts in wrestling with prompts and topics created a space where conversation was dedicated to shoring up vocabulary misconceptions rather than debating the topics. It is possible,
however, that the problems with terminology were in fact explorations and negotiations of an ill-understood emerging phenomenon.

For online education to remain a viable field from which to explore the MOOC, the field must agree upon terms as basic as data, open, and student, as well as complex topics such as pedagogy and personalization, and emergence.

CONCLUSION

While the speed with which the MOOC phenomenon gained traction in educational conversations was unprecedented, many educators and critics have expected the MOOC to follow the trajectory of previous waves of educational technology (Watters, 2012). These arguments often cite failed institutionally backed online initiatives of the past, or Gartner’s Hype Cycle (Neal, 2013) to reasonably account for the excitement while justifying a belief that the technology cannot meet expectations. For these educators and critics, the MOOC phenomenon is yet another example of organizations and businesses with a limited understanding of education and pedagogy failing to adequately provide solutions.

The failures of prior online education efforts and subsequent reforms are important to consider as part of the MOOC phenomenon. The MOOC phenomenon born of CS 271 includes elite universities, multinational organizations, news media, public policy, commerce, and venture capital. While educators may see the MOOC under increased scrutiny as a learning model, its footprint in society and policy continues to grow, launching a new reality for online learning, one that appears to be unfamiliar with the field’s past.

The results of the Delphi study show an interest in using MOOCs as well as other technologies and data formats to offer different and potentially better opportunities for learning, but they also show a reticence to engage the topic of education in a sociocultural manner, focusing instead on abstracting the institution of higher education from society and attempting to pinpoint progress. Higher education has long been an intersection of various stakeholders with varying understandings of history and research in education, and MOOC stakeholders new to the historical and research-based aspects of the discipline have made missteps and encountered knowledge gaps consistent with prior iterations of educational technology and educational solutionism. The prior ventures were not supported from outside by a web of power and sphere of influence, though; this has allowed the MOOC to enjoy an unprecedented rise in
notoriety and popularity despite no research-based positive effect on the broken higher education system it purports to fix.

Where the MOOC has been successful is in shaping debate and setting discussion parameters outside the traditional higher education structure: redefining existing education vernacular while establishing new terms for the field, offering cognitive learning as the focal point of learning theory, focusing non-structural MOOC discussion on economics and thereby defining education as a product and a private good, and labelling the purpose of education as the development of careers and skills. From this perspective, MOOC success has less to do with course completion and more with renegotiating the manner in which society talks about education. It is those conversations that will continue to dictate the course of higher education practice and policy, rather than the intricacies of the learning model.

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