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A Critical Consideration of Contemporary Openness in Online Education

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A Critical Consideration of Contemporary Openness in Online Education

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Dedication

To my dear wife and best friend, Aimee, whose support, love, and enduring patience have made possible this and every endeavor of my maturity, and to Emma Blake Palmintier, who always embraced every original or worthy thought and whose bright glow and fading light shall always help me remember the value and importance of creativity, understanding, and empathy.

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A Critical Consideration of Contemporary Openness in Online Education

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Abstract: As the so-called Open Education Movement develops amidst the maturation and growth of computer and Internet technologies, there exists a need for a critical understanding of Open Education itself and its implications for online learning and teaching at distance and scale. To that end, this project essays to establish the limits and possibilities of Open Education as they exist within the context of contemporary neoliberal ideological infiltration of public and higher education, as well as associated processes and structures of licensing, funding, and curriculum. Utilizing a deschooled critical approach grounded in postmodern theories of rhizomatic formation and contemporary notions of the commons, this textual and theoretical research begins by stating the need to clarify what is meant by the term, "open education" and verifying whether and to what extent existing scholarship has engaged the subject at a level appropriate to the threat posed by neoliberal policies, discourses, practices, and enclosures. Applying a transformative research paradigm to a textual analysis that views purposefully-selected free-and-open learning, education, and teaching websites as examples of material culture, this research project seeks to understand Open Education outside of the strictures and limitations of institutionalized education. By examining the mission of selected sites, their promotion of open licensing practices, funding resources

that make such learning possible, curricular decisions made at networked scale, and a sample of learning experiences, a conception of limits and possibilities emerges within each of these domains. It is suggested that by encouraging reciprocal learning and teaching through the most permissive level of attributive licensing that encourages sharing, open education can indeed realize some measure of its potential to proliferate open and inclusive learning practices at scale. Due to its low barrier of entry, relative openness, and non-reliance on institutionalized funding, Wikiversity is promoted as a promising site for future efforts through a model of Openly Shared Learning Opportunities (OSLO), even though continued care must be taken to resist corporatocratic and neoliberal intrusion. By removing traditional boundaries established by the need for "teachers" to "educate" learners, OSLO reinvigorates both the subject and the Multitude through engagement with the digital commons.

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Chapter 1: Introduction

The contemporary phenomenon of increasing Internet access - and concomitant technical development - has greatly impacted conventional forms of education, with results both intended and unintended. Because of its social, informational, and political nature, the Internet, considered broadly, has had, and will continue to have, profound consequences on teaching and learning as they occur in schools. However, rather than examine the Internet phenomenon in relation to schools, this study will instead focus on a specific aspect of the human educational project located within the Internet itself: openness in education, commonly referred to as the Open Education Movement (OEM).

This meta- and extra-scholastic perspective is essential because current social, political, economic, and technological conditions pose a possible existential threat to traditional notions of schooling. While from a certain radical perspective, this threat may hold some measure of emancipatory promise, it also proves problematic in light of neoliberal attempts to dismantle public education in favor of mere privatized educational enterprise. The present study attempts to situate open education as part of a larger discussion about the role and future of public education in democratic society. Through an analysis of existing open educational frameworks and resources, I hope to determine the extent to which and under what circumstances this movement might represent a beneficial adjunct or option to the current system of schooling, as well as account for the possible consequences of the deployment of open education at scale. Thus, both critical and postmodern theory will be analytically deployed to contextualize the proliferation of openness in the current era of neoliberal enclosure and concomitant resistance.

BACKGROUND

In attempting to establish the background for understanding the current project, it will be helpful to relate some of the history of “Open Education” (OE) as a movement before turning to specific contemporary usage. First, however, a brief overview of my authorial interest in this topic will help to contextualize my discussion of some of the issues that will be examined in more detail in the following chapters.

I developed an interest in the open education movement as a direct result of the liminal space I occupied following my transition from the public educational sector to a leadership role in a small online training company started and managed by a close friend. My movement from public educator to educational tradesman shapes my awareness of both the promise and peril of the OEM.

I began my teaching career in the largest public high school in New Orleans, Louisiana in 2002. Three years later, when Hurricane Katrina destroyed my school and the surrounding community, my wife - a public school Speech Language Pathologist (SLP) - and I evacuated to the Austin, Texas metropolitan area, where, following a brief period of unemployment and public assistance, I was fortunate to get on with a local school district. The shift from urban to suburban public schooling was jarring, for even though I taught in one of the "tougher" communities in my district, it was still a world away from the privation I witnessed in pre-Katrina New Orleans. I had an early taste for educational leadership -- I was named Chair of my English department both as a first-year teacher in New Orleans and as a more experienced teacher in Round Rock, Texas - but the contrasts I witnessed between the Texas haves and the Louisiana have-nots only further cemented my desire to meaningfully address social and educational inequality.

In my fourth year teaching in Texas, some of the recognition I received as a teacher led to my being recruited to help lead my district's "reform" efforts as a district-

level instructional coach. As such, I was charged with improving teaching and learning in all high school English Language Arts classrooms within my district. My position afforded me a rare - for a teacher - glimpse inside the political workings of a medium-sized school district. I was not corrupted by the pay, prestige, and career expectations of being a school administrator, yet I was often involved in central-office deliberations directly affecting school leadership. At the same time, I actually made less than many teachers (I took a large pay cut when I lost my teacher stipends), and much of my work time was spent in classrooms with teachers helping them troubleshoot various instructional dilemmas, including overcoming the challenges presented by emerging instructional technology.

In the ensuing years after I left the classroom to work at the district level as an instructional coach and coordinator of various programs, I lived a bifurcated existence: I was privy to my district's decision-making processes, but also a direct witness to the consequences of those decisions as lived by teachers and students alike. The careerism, politics, and bureaucracy I witnessed at the both the district and state levels gave me cause to eschew ever being an administrator. Unfortunately, now that I knew "how the sausage was made," I felt unable to return to the classroom to be a pawn of larger political and social forces. Then, just when I was beginning to chafe in my medial role, my trusted immediate supervisor left to assume the superintendence of a small west-Texas district that had been rocked by a testing scandal. He urged me to move on as well, saying, "If you are still doing this in a year from now, I am going to be disappointed." I took him at his word and began to consider my options.

For many years I had supplemented my income by writing online courses for my friend's fledgling online training company. The time arrived when the company, which focused on affordable continuing education for working professionals, was big enough to

hire me in a managerial role working with subject matter experts (SMEs) and course developers. After much soul-searching about leaving public education, where my identity and family were formed - literally, for my mother and wife were both still in the field - I finally decided to leave the comfortably structured world of public education to work full time in an organization devoted to online learning.

I was fortunate in that a dear friend - with whom I shared a love of learning and technology, as well as an innate distrust of the status quo - founded and continued to run the company that I joined. In addition to our paid work creating and selling technical training courses, we also sketched out plans for non-profit alternatives for learners not served by traditional educational systems. We had previously discussed possibilities for low-cost skills-based training as a possible outlet for our mutual communal spirit, and out of this preliminary work grew a project dedicated to helping those within our immediate networks share their own skills and expertise, a project known then as the Transformative Union of Rhizomatic Networks (TURN). The search for new methods of expanding what we were doing led me to open education as a way to harness the power of online networks for a communal good. This work was important to me, but I still felt intimately connected to my many friends and family working diligently and unrecognized in the schools. Yet, while I still believed in the worth of a functioning system of public education, I had also grown disillusioned about the ability to enact large-scale change in the ossified structures of public schooling. I had enough experience inside the local reform movement to distrust any promise of technology as a panacea, yet I could not help but feel that there was something about openness that made it different. In the concept of open education, I felt there might way to reconcile the desire for social justice that drew me to teaching in the first place with the exhilarating potential of networked communication that was the hallmark of my new field.

Unlike the closed and proprietary curricula conceived in many school districts, in the new technology-driven educational world I was coming to occupy, the notion of open-source resources leading to meaningful innovation was old hat. There seemed to be a blind acceptance of the value of these open resources, however, and as a longtime advocate of public education, this concerned me greatly. It is not necessarily that such resources lacked value, but rather that their utility might come at a cost to learners and the public at large. The dangers posed by for-profit online education enacted at the expense of universal schooling were more readily discernible, but it seemed to me that the accessibility of seemingly "free" educational resources may serve to obscure their disruptive potential.

Thus, as I personally moved into a hybrid space of private enterprise and not-for-profit educational innovation, I found myself wanting to more clearly explore the theoretical issues surrounding the development and deployment of technologies at the heart of the open education movement. If I am to work outside of schools to advance alternative modes of education, then I feel ethically compelled to do so in such way that minimizes the negative displacement of public education, which up to now has formed the nexus of our society's attempt to educate universally as a component of social justice. One aspect of this possible displacement may be found in multiple articulations of the discourse of openness.

STATEMENT OF THE PROBLEM

Context

The only consensus about open education is that there is a *lack* of consensus on the meaning of the term in the modern context (Armellini & Nie, 2013); thus an "authoritatively accredited definition" (Geser, 2007) does not exist. The term "open,"

used in the context of education, entered American educational discourse in the late 1960s when British methods of informal learning, influenced by Rousseau and Froebel, intersected with the American strain of progressive education most often identified with Jane Addams and John Dewey (Smith, 1988). At this time, the concept was applied principally to the primary grades. Moreover, in America, open educational ideas were often grafted onto existing school practices and structures in a manner vastly different from the foundational approach applied in England, which was at least partially blamed for the approach's eventual failure (Barth, 1972).

For a while, at least, this period was fertile for the concept of open education, and a conference was held at the State University of New York at Buffalo in 1974 (Nyberg, 1975). In the context of that conference, the following definition of "open education" (Tunnell, 1975) emerged:

> 1) Students are to pursue educational activities of their own choosing; 2) Teachers are to create an environment rich in educational possibilities; 3) Teachers are to give a student individualized instruction based on what he/she is interested in, but they are also to guide the children along educationally worthwhile lines; 4) Teachers are to respect students (Tunnell, 1975, p. 17).

Arguably, these terms can be related at least indirectly to the current usage of "open education," and, as we shall see, at least the first two are directly applicable.

This period also coincided with the founding of the Open University in Britain, which opened its doors in 1971 ("History of the OU," 2014). At least three defining features of the Open University may still be found in our modern conception of open education: an open admissions policy, a commitment to using technology, and a mission of serving learners at both distance and scale - the inaugural class featured 25,000 students ("History of the OU," 2014). With the opening of the Open University, open education was extended beyond the primary grade student population whom it was first

employed to serve in its original iteration. However, the progressive elements of this first iteration of open education soon fell victim to the changing tides of the western political and cultural stance regarding education. By the mid-70s:

> the wave of interest and reform had substantially passed, as the country itself moved away from the famous '60s, with all its turmoil and protest and revolt against social inequalities, authoritarian views and static, unresponsive institutions. . . towards a more conservative, narrower view of what is possible for schools, for teachers, and for children (Smith, 1988, p. 14).

While the American experiment with open education came to the unceremonious close typified by Barth's account, in Britain it continued largely through the auspices of the Open University, whose focus on adult and distance learning was to prove influential on future iterations of the open ideal.

Internationally, by the nineties, the original child-centered meaning of open education seemed to have been jettisoned in favor of a more pragmatic usage in the context of distance learning for adults. In her review of then-recent trends and developments in distance and open learning, Sarah Guri-Rozenblit (1991) noted that "Distance education and open learning can be interpreted in many different ways. As a result, they are used by some scholars interchangeably" (p. xii). Since that time, the common definition of distance learning seems to have remained fairly constant. According to Roblyer and Edwards (1997), the United States Distance Learning Association defines distance learning as "the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance" (p. 192). While other definitions of distance learning have differed in how they treat the "learning" part of the equation, there seems to have been a consistent agreement in the intervening years about the spatial meaning of "distance" in that terminology (Halfond, 2011). The same level of constancy has not applied to the

common usage of “open education,” but it has at least *evolved* in a consistent manner. Consistently, “open” is used to describe access, regardless of distance; in this way, the two terms have diverged. While there may still be spatial connotations shared between the two, the access aspect of “open” education that is now emphasized is unique.

As we shall see, a central question of this research will center on the interplay between various definitions of "open education." An examination of how the discourse of openness is specifically deployed in specific situations may help to delineate the educational context at play. For now, it is necessary to update the preceding brief history of "openness" in education by describing how the term has mutated in modern usage. This elliptical definition will set the stage for the scope of Chapter Two.

Multiple accounts (Armellini & Nie, 2013; Geser, 2007) begin their attempts at defining contemporary open education with the 2002 United Nations Educational, Scientific, and Cultural Organization definition of “open education resources” as, “the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes” (UNESCO, 2002). With this definition in mind - especially the “adaptation” part - it seems as if the attention and press garnered by Massive Open Online Courses (aka MOOCs, or the variant cMOOCs and xMOOCs) in the last couple of years has confused the issue somewhat in that these educational tools use the term “open” in such a way that it is conflated with “distance” to partially denote the spatial relationship of the learner to the educational source. They also share with original Open University the “open” enrollment aspect of accessibility. However, there are some other key ways that MOOCs differ from the most specific and defined aspects of the contemporary open education movement, and in this context, MOOCs may be seen as not-open. The extent to which MOOCs are commonly considered by of the larger Open

Education Movement, despite lacking many of the relevant characteristics of the contemporary sense of openness, is a problem that will be examined more fully over the course of this study.

Neary and Winn (2012) make a distinction between Open Education and Open Education Resources, while acknowledging that the two terms are often used interchangeably. In their explanation, Open Education is the broader of the two terms. They acknowledge that its use predates to the 1960s, yet they contend that in current usage it focuses more clearly on the opportunities opened up by technological advances in computing and network connectivity, referring to, "recent efforts by individuals and organizations across the world to use the Internet to share knowledge, ideas, teaching practices, infrastructure, tools and resources, inside and outside formal educational settings" (Neary & Winn, 2012). Kolesnikova (2010), in addressing the cross-cultural issues raised by open education (OE), locates the developmental context of OE in contemporary tendencies of "globalization, computerization, and democratization" (p.3). For the remainder of this study, use of the term "Open Education" (OE) will refer to this more modern sense, as opposed to the classical use of the term as it was introduced and gained attention in the late 1960s and early 1970s.

Neary and Winn (2012) emphasize the radical difference between classic open education and the current use of the term within contemporary formulations such as open educational resources:

> Open Educational Resources (OER) refers to the worldwide community effort to create an educational commons based on the provision of actual 'educational materials and resources offered freely and openly for anyone to use and under some licenses to re-mix, improve and redistribute' (Wikipedia). Typically, those resources are made available under a Creative Commons license and include both learning resources and tools by which those resources are created, managed and disseminated (p. 407).

Within the creative commons community, this definition of openness is taken very seriously, which I learned firsthand as I sat in the audience to hear Cable Green, the Director of Global Learning for Creative Commons, speak on “Open Education: The Business and Policy Case for OER” (Green, 2014) at SXSWedu 2014. While waiting, I was chatting with the gentleman sitting next to me about some of the possible directions for my upcoming research into open education. I made the mistake of bringing up MOOCs, at which point this attendee, eager to school me in the culture of open resources, cautioned me against throwing around the term “open” too freely: “There’s a big difference between ‘open’ and ‘free’ with this group, as you are about to see. . . .” By this, he seemed to be emphasizing that free resources, including MOOCs, are not necessarily open according to the definition of openness agreed upon within the open source community. The ramifications of such distinctions will be part of the theoretical research conducted as part of this study, but I was unable to dig deeper into the topic with my self-appointed squire, for our conversation was cut short by the beginning of Dr. Green's engaging and informative presentation.

Green laid out the case for open educational resources, as they are defined by the institution with which he affiliates: Creative Commons ("Creative Commons," 2017). The work of this non-profit has been connected to the idea of information freedom (Garcelon, 2009.), and they have done extensive work to organize and certify various degrees of intellectual property rights beyond the wide-open public domain and the juridical and litigious world of full United States copyright protection. In Chapter 2, I will provide more insight into how the creative common spectrum of attribution works, but for now it will suffice to say that they promote the highest level of openness, which Green described using the “4 Rs.” Hilton, et. al. (2010), drawing from the work of co-author Wiley, describe the four Rs of openness thusly:

> Reuse – the most basic level of openness. People are allowed to freely use all or part of the unaltered, verbatim work; Redistribute – people can share copies of the work with others; Revise – people can adapt, modify, translate, or change the form of the work; Remix – people can take two or more existing resources and combine them to create a new resource (p. 39).

If a component resource is missing any aspect of these "4 Rs," then, while it might consumable, sharable, or editable, it is not truly "open." This conception of openness has important ramifications for the scope of this study, but even at its most expansive, the concept, as seen in figurations such as the broad open education movement, seems ripe for further investigation.

The Missing Critique of the OEM

There is a long tradition within curriculum theory of engaging the multiple axes that intersect discourses of education, power, and civil society. Whilst the component discourses themselves have shifted internally to account for contemporary developments and conceptual shifts, the importance of these discourses has remained constant, most notably through the work of Freire, Giroux, and Apple, among others. Various curriculum scholars have differed in their deployment of critical or postmodern epistemologies, or in how they construe the tension between reproduction and resistance, but any effort to “read curriculum as a political text” (Pinar & Bowers, 1992), would seem incomplete without at least a preliminary account of power and how it informs our understanding of class, race, gender, and most any other normative discourse.

That being said, there are emerging discourses in education that have not yet benefitted from a critical application of the lens of power, or at least to a sufficient extent. One such area is the rapidly proliferating field known broadly as Open Educational Resources (OER), which includes but is not limited to, Open CourseWare (OCW), Massive Open Online Courses (MOOCs), open-source curriculum (OSC), and other

open-source educational projects. As Rhoads, Berdan, and Toven-Lindsey (2013) noted in a recent article that focused specifically on the need for a critical analysis of power in open educational projects, "Given the tendency for instructional technology to be divorced from theory, we see the lack of theoretical work relative to the OCW movement as a serious flaw" (p. 100). The lack of a theoretical and textual exploration of the potential and peril of open education resources as considered within multiple discourses of power is heretofore considered a sizable gap in the knowledge of the field.

In essaying approaches to help fill this gap, current theory suggests that neoliberalism, the central economic ideology of late capitalism (Harvey, 2005a), drives much contemporary educational reform, especially the trends favoring accountability, privatization, market competition, and destabilization (Ambrosio, 2013), often in ways that complicate traditional notions of hegemony and resistance (De Lissovoy, 2013). Thus, while it will be important to consider how open educational resources could support the commonly understood democratic ideals of our public education system, this study will also investigate the extent to which open education could be misused to serve the neoliberal project, especially in regard to destabilization and the promulgation of tiered regimes of knowledge. This effort will be grounded in a specific set of research questions, whose deployment will be discussed further in Chapter Three.

RESEARCH QUESTIONS

- What are the possibilities and limits of contemporary openness in online education?
- To what extent does the promulgation of openness in online education represent a rupture with prevailing discourses and practices of neoliberalism, and to what extent does it represent a continuation of these discourses and practices?

To help answer these questions, I begin with a textual analysis of various open online educational resources to in an effort to understand how they came to be open and what the implications of that openness might be. The number of resources that meet the rigorous definition of "open" previously enumerated will sufficiently limit the available artifacts for full consideration, but I will work backwards, as necessary, to partially analyze less-than-open resources to help illustrate the theoretical implications of various levels of openness. For the purposes of this analysis, the previously mentioned "4 Rs" (Wiley, 2009; Hilton, Wiley, Stein, & Johnson, 2010) form the basis of my initial framework, however rather than perform a focused discourse analysis, I intend to examine the deeper philosophical, theoretical, political, and curricular assumptions underlying open resources and their deployment.

A critical theoretical perspective will be applied to the open resources thus identified. Sources of funding, the institutional contexts of development, delivery systems, and user experiences are all aspects that will be examined. Additionally, knowledge capitalism and its implication in capitalist social production will be investigated. Once these foundational issues have been addressed, the possible consequences of educational openness will be explored. Contemporary conceptions of the common (Neary and Winn, 2012), commonwealth (Hardt and Negri, 2009), and the common school (De Lissovoy, Means, & Saltman, 2015) will be deployed alongside openness as possible constructive frameworks within which to understand the transformative potential of the movement. While openness in education seems promising, that promise must be fully explored to consider the peril involved in a displacement of extant educational system. There exists the possibility that open education may be implicated in the perceived neoliberal attack on public education in its current form, at least to the extent that private foundations and large corporations provide vast material

support to open initiatives (Creative Commons, 2014). By researching how the discourse of power manifests itself in various permutations of educational openness, it is hoped that this project can add to literature supporting critical pedagogy (H. A. Giroux, 1992), albeit in an emerging space outside of traditional notions of schooling.

In addition to a critical perspective, I will also employ a postmodern approach to understanding both the need for - and possible ramifications of - radical openness in education at the level of the subject. Illich's (1971) work describing the schooled consciousness, as well as his work on deschooling generally, may help to contextualize the implications of openness on education in the present. Because of the radically decentered nature of openness, the need for an organizing principle, in the form of the rhizome (Deleuze and Guattari, 1987), will also be examined. In this way, it is hoped that this study will contribute to work in the field attempting to situate the human educational project in the face of rapidly evolving technological and ecological challenges.

SIGNIFICANCE OF THE STUDY

This study will center on a theoretical and textual analysis of various aspects of the OEM as they exist contextually in the present time. The findings will be of interest to researchers seeking to understand the scope of the OEM so that they may situate their own work. In the context of traditional schooling, professional educators will be able to draw upon identified open resources as part of their own pedagogy and use the critical analyses thereof to assist in making determinations about resource deployment. Independent educators and educational theorists will find fissures and ruptures in the OE firmament that will propel future development of specific open educational resources in a

consciously ethical manner, as opposed to meeting the narrow needs of capital accumulation.

CONCLUSION

The ascension of the contemporary Internet as the dominant medium for mass communication has resulted in a proliferation of information technologies unlike anything seen since the birth of the moveable press. Unlike traditional modes of schooling, the rhizomatic nature of this medium engenders a revolutionary opportunity to those who see education as an essential component of human liberation from oppressive social, economic, and political structures. Rather than rely on centralized and controlled systems of schooling, there exists a promise that the open and inclusive structure of the Internet might allow for education to become a distributed and decentralized collaborative activity, one which occurs across previously impassable boundaries of geography, class, and even language.

However, access to information is not the same as education, and there exists a darker possibility that the amorphous and nebulous nature of virtual networks can just as easily enable strategic misinformation or, to the extent that the knowledge shared via the Internet can be verified and trusted, that mere knowledge is proffered in its dazzling accessibility as a substitute for more proven methods of education and skills acquisition. If access to information or resources is allowed to stand in for meaningful pedagogical and curricular practice, or if such access is allowed to flow in only one direction, either from producer to consumer, author to audience, or pedagogue to pupil, then the promise of open education may well have been squandered. If educational resources are allowed to flow freely by remaining truly open - i.e., reusable, redistributable, revisable, and

remixable - then they may well prove revolutionary in their capacity to be taken up and used by the disenfranchised others not currently served properly by existing systems.

It may be seen that Open Education indeed represents a revolutionary approach to educational access and creation of content, curriculum, and pedagogy in that it decentralizes control, yet this decentralization also poses threats of its own regarding the veracity of the education being proffered and in the indeterminate effectiveness of open praxis. These threats that are magnified when the project of education is unmoored from traditional modes of schooling, and therefore require careful study and theorization to help us prepare for what is perhaps to come. At this moment in time, the Open Education Movement is already underway and could conceivably only be contained by a restriction of the network nodes that make up the diverse and diffuse Internet, which is neither desirable nor likely absent massive state-level action. As a field, we have little choice but to attempt a conceptualization of what it is now and what it could become, lest we forgo our opportunity to help guide its development as experienced pedagogues, curricularists, researchers, and theorists.

As the author of this study, I locate myself as an outsider relative to the current institution of schools, albeit one with inside knowledge of how the system operates owing to my former engagement therein - an etic insider, if you will. This location is at least partially a result of my transition from an occupational identity rooted in the public school system itself to one rooted in the space of private enterprise and non-profit organization. From these perspectives, I see the possibilities inherent in the development and use of open educational resources both inside of schools and outside of schools as part of the Open Education Movement, broadly considered. Many terms related to the open education movement require clarification and situation, including the very concept

of "open" itself. Part of the work of this study is to examine and describe the parameters of contemporary educational openness.

Once this has been accomplished and "openness" is at least situated in its complexity as a phenomenon, that phenomenon will be explicated in light of its relations to power, most clearly seen in this study as capital relations. What is and isn't considered open, and how such resources flow, are created, and are used may indicate their limits and possibilities, as well as their potential for misuse. Perhaps the most dangerous possible misuse of the fruits of the open education movement would be as a lever in the continued neoliberal attack on public education. This attack is concerning because of the narrow and selfish motivations that lie at the foundation of neoliberalism specifically, and capitalism generally. While it is conceivable that the promise of the open educational movement will displace traditional notions of schooling in a positive manner, potential negative displacements must be considered to help enable the ethical and humanistic deployment of open educational resources and technology. Such disruption, left unmanaged or unaccounted-for, would have dire consequences on those who don't have independent access to conditions and materiel conducive to learning.

Thus, the present study intends to contextualize the contemporary phenomenon of open education outside of traditional schooling, and in so doing, attempt to understand the ramifications of such exteriority. While open education seems to hold great promise for the human educational project, social and economic investment in such resources could have unintended consequences. By exploring the meaning and application of open education outside of schools, it is hoped that these consequences can be anticipated and managed within a theoretical sphere. In this way, this study hopes to articulate a vision of the open education movement that utilizes distributed networks to help increase equitable access to learning despite ongoing threats of ideological and socio-economic domination.

Chapter 2: Review of The Literature

INTRODUCTION: THE DISCOURSE OF OPENNESS

Situating this project in the field of research on open education presents a specific challenge in that the meaning of the term "open" often depends greatly on the context of usage. In the field of child-centered pedagogy and curriculum, the term hearkens back to the open education experiments of the early twentieth century in Europe and America (Nyberg, 1975). Researchers in the field of Open and Distance Learning (ODL) feel comfortable with broad use of the term to denote various forms of distance education, such as found in the work of the original British Open University (Bates, 1988). Academics in Instructional Technology (IT) and related fields associate the term with the Free and Open Source Software (FOSS) movement (Couros, 2009; Donabedian and Carey, 2011), as well as current iterations of open source software in education (Dolphin, 2014). Current practitioners, both in and out of Higher Education (HE), might think of the features of open access commonly ascribed to educational structures such as Massively Open Online Courses (MOOCs) (McAuley, Stewart, Siemens, & Cormier, 2010; Veletsianos, 2013; Alquezar-Sabadie, Munoz, Puni, Redecker, & Vuorikari, 2014), or of how to integrate Open Educational Resources (OER) (Atkins, Brown, & Hammond, 2007) into an existing course. Working scholars may focus on the professional applications of openness represented by open access and open scholarship (Veletsianos and Kimmons, 2012). To the list we could also add open access (Willinsky, 2006), open data (Stuart, 2014), open textbooks (Matkin, 2009), and open Learning Management Systems (LMS) (van Rooij, 2012), among many others. These various senses of openness will be explicated to varying degrees over the course of this review, but for now they are

introduced to help illustrate the complexity of the landscape under examination, which we may describe as the discourse of openness in education.

The proliferation of possible understandings of openness within this discourse presents a problem for a research project focused on the liberatory potential of the movement as a whole because to focus on any one of these competing understanding at the exclusion of the others might mean that a potentially meaningful application of openness gets overlooked. It is precisely my intention that by exploring these various conceptions of openness, I might be able to adequately investigate the importance of what is commonly called the Open Education Movement (OEM) (Deimann and Farrow, 2013) in its totality. After describing some of the common points of agreement and dissent on terminology within the literature on Open Education, I will posit a working definition of the term that will guide a critical account of how social, economic, cultural, and political concerns are, or are not, addressed in the literature. This same understanding of Open Education will then inform an exploration of how openness has been conceptualized in the research, specifically in terms of teaching, learning, and scholarly work contextualized as part of the broader OEM.

A COMMON HISTORY: OPEN TERMINOLOGY

In their description of the broad conception of open knowledge, Garcia-Peñalvo, de Figuerola, and Merlo (2010) relate a history of the contemporary open education movement that overlaps in many such accounts, including: UNESCO's coinage of the term Open Educational Resources (OER) in 2002 (see also Richter and McPherson, 2012; Alquezar-Sabadie, Munoz, Puni, Redecker, and Vuorikari, 2014; Mtebe and Raisamo, 2014; Armellini and Nie, 2013; Bradshaw, Younie, and Jones, 2013; Panke and Seuffert, 2013; Nazar, Fatima, and Fatima, 2012); the trailblazing nature of MIT's Open

CourseWare (OCW) initiative (see also Rhoads, Berdan, Toven-Lindsey, 2013; Moore, 2002; Atkins, Brown, and Hammond, 2007; Matkin, 2009; Friesen and Murray, 2013; Alquezar-Sabadie, Munoz, Puni, Redecker, and Vuorikari, 2014); the seminal roles played by Larry Lessig and Creative Commons (see also Peters, 2010; Hilton and Wiley, 2010; Neary and Winn, 2012; Lamb and Groom, 2010; McAndrew, 2010; Willinsky, 2006); and the importance of the Cape Town Open Education Declaration in establishing the current prevalent definition of open education (see also Zagbab and Beckenholdt, 2014; Neary and Winn, 2012; de Langen and Bitter-Rijkema, 2012; Peters, 2010). As Fong (2008) says, "When we put all the 'opens' together, open source, accessibility, modality, content, and open enrollment, we have a form of open education that has enormous potential to truly make learning available to anyone at any time and anywhere a reality" (p. 409). The existence and worth of this potential are key concerns of this project, but by looking at all of the "'opens; together" a common history emerges that informs my understanding of openness in education. Thus, before I engage a full discussion of the literature most relevant to the currently proposed research project, I will briefly review the most frequently cited touchstones of the OEM to help the reader gain some familiarity with the terminology and the major players in the ongoing conglomeration of open ideals. These topics will re-emerge within later discussions of the literature itself.

Open Educational Resources and the United Nations Educational, Scientific, and Cultural Organization

Open Educational Resources (OER) are one of the most commonly and readily accessible manifestations of Open Education (OE). Mtebe and Raisamo (2014) cite the Organization for Economic Cooperation and Development (OECD) definition of OER as "freely and openly available digitized learning resources that can be adapted, modified,

and re-used for teaching, learning, and research" (p. 250) and trace the history of OER from its introduction by the United Nations Educational, Scientific and Cultural Organization (UNESCO) at the Forum on the Impact of Open Courseware for Higher Education in Developing Countries 2002, hosted by UNESCO in Paris, France (pp. 250-251). More recently, UNESCO has defined open educational content more broadly as "teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution" (UNESCO, 2011). UNESCO's status as a non-governmental organization with an international mandate has helped its definition of OER gain traction in diverse settings and institutions.

Open CourseWare and the Massachusetts Institute of Technology

The launch of the massive Open CourseWare (OCW) initiative by the Massachusetts Institute of Technology (MIT) in 2001 was a watershed event in the larger history of online openness in education (Atkins et al., 2007; Rhoads et al., 2013). For the first time, a top-tier research institution pledged to open up a substantial amount of its instructional coursework for anyone to access via the Internet, anywhere, anytime, and for free. Rhoads, et al. (2013) place the OCW movement that grew out of MIT's pioneering early effort as a subset of the larger OER movement (pp. 87-88) in that the larger ecosystem of available resources make the creation of open courses possible. Other OCW initiatives followed the example set by MIT - now known as MITx, in partnership with edX ("Mitx," 2015) - such as AllLearn, which famously counted Oxford, Princeton, Stanford, and Yale as members (Rhoads, et al., 2013, p. 90), but is now defunct. Such OCW offerings have been and are diverse, but may generally be understood to include at least some characteristics of the Massively Open Online Course (MOOC), which may be

considered the most well-known type of OCW and will be discussed at length later in this review. Other examples of OCW contents might include reading lists, course assignments, lecture notes, syllabi, study materials, problems sets, assessments, images, diagrams, simulations, and streaming videos (Smith and Casserly, 2006).

The possibility of earning university credit or even degrees is often held out as a positive benefit of OCW, but for many that promise goes unfulfilled, as recent controversy over MOOCs has shown (Christensen & Alcorn, 2014). Commercialized outgrowths of OCW, such as Coursera (Hays and Damron, 2014) and Udacity ("Udacity," 2014), point to the potential capture of open structures by private enterprise. Coursera often sources its content from partner institutions (Usher, 2013), and as such can be seen as having much the same content structure as traditional MOOCs. The sourcing of Coursera's offerings brings to light the troubling alliance between private capital and institutions of higher education. Although Udacity once had a similar approach, as the market contracted (Usher, 2013) its offerings have tended to be more self-contained than MOOCs, and to also lack the institutionalized framework that links MOOCs conceived in academic settings to their academic lineage. Udacity's subject matter also tends to be more specifically focused on the needs of the working adults who make up its target audience.

Open Educational Resources and Creative Commons

Matkin (2009) emphasizes a conception of open knowledge that may be found in both the aforementioned movements of Open Education and OCW, but such a conception still requires a means to confirm reliability and authenticity, which is a function that is at least partially fulfilled by authorial attribution. Andersen (2010) identifies the common theme in various permutations of openness in education as the sharing of content that

would otherwise be restricted in their sharing by intellectual property laws. Thus, in open systems there exists a need for a system of attributions that allows information to be sourced for validity while not placing unnecessary restrictions on the open flow of that information through appropriate networks. This is the need fulfilled by the Creative Commons system of attribution.

Creative Commons is a non-profit organization that works to create and sustain a workable public domain within the current system of copyright through the promulgation of a system that affords the sharing, redistribution, reuse, or creation of derivative works at various levels running the full spectrum of possible creator-defined licenses. Lawrence Lessig, a Stanford-based scholar of intellectual property, helped begin the organization, was its first chairman (Conhaim, 2002), and still publishes widely on the importance of the public domain. There are currently four levels of Creative Commons licensing:

> *CC BY*: The most permissive, and thus open license, restricts rights to copy and share and only requires attribution to the copyright owner – owned BY. The CC BY license allows for reuse of the content including modifying, adding, or deleting portions and redistributing in any format. Content licensed with only the Creative Commons attribution restriction, the CC BY license, is sometimes referred to as open content; *CC ND*: Some authors and publishers use an additional restriction that stipulates *no derivatives* such as edits and additions; *CC NC*: The copyright owner can also include a *noncommercial* restriction that prohibits others from selling or bartering the copyright product; *CC SA*: This *share alike* restriction allows the user to share the copyright material, if it is relicensed under the same licensing agreement adopted by the copyright owner. All of these rights retained can be added together to create a legal license (linked to at http://creativecommons.org/) that has many combinations, for example CC BY-ND-NC (Anderson, 2013, p. 83).

Importantly, this schema locates "open content" at the highest level of permissiveness and the lowest level of restriction. Such location further bolsters a conception of openness in education, generally speaking, that is likewise permissive and nonrestrictive. Thus, the Creative Commons licensing system is often seen as promoting and enabling (Green,

2014) the "4-Rs" of openness (J. Hilton et al., 2010), which was described in the previous chapter as the guiding understanding of openness in education that undergirds the present study.

The Cape Town Open Education Declaration

While there have been other such declarations, including those at Budapest, Berlin (Garcia-Peñalvo, de Figuerola, & Merlo, 2010), and Paris (Alquezar-Sabadie et al., 2014), the Cape Town Open Education Declaration is most often cited as the source for a common definition of Open Education (Zagbab and Beckenholdt, 2014; Neary and Winn, 2012; de Langen and Bitter-Rijkema, 2012; Peters, 2010). The Cape Town Declaration defines OER as "openly licensed course materials, lesson plans, textbooks, games, software and other materials that support teaching and learning" but also extends the scope of Open Education beyond OER to include "open technologies that facilitate collaborative, flexible learning and the open sharing of teaching practices that empower educators to benefit from the best ideas of their colleagues" as well as possible future efforts to "include new approaches to assessment, accreditation and collaborative learning" ("Cape Town Open Education Declaration," 2007). The broad scope of this widely-cited declaration helps to justify the similarly broad approach to be employed by this study, as it points to the extent to which open practices are interrelated. OER are useless without open pedagogy and impossible without open licensing; OCW and OER will never find currency absent open scholarship, which in turn relies upon a system of open access and open data; all are impossible without addressing strategic needs. The Cape Town Declaration attempts this by establishing a tripartite approach in appealing to both learners and educators to participate and share Open Education resources and practices, and by urging policy makers to support Open Education as well by prioritizing

open systems and making all publicly funded resources open. As of this writing, there were 2,747 signatories to the Declaration, from every corner of the world ("Cape Town Open Education Declaration," 2007).

Open Source in Education

In order to understand the conceptual shift needed within the field to fully appreciate the ramifications of the growing push for true openness, it is helpful to consider the common heritage shared between Open Education and the phenomenon of Open Source Software. Broadly speaking, the core philosophy behind open source software plays an important role in maintaining an academic culture of openness (Wiley, 2006). McAndrew (2010) locates the emergent understanding of openness in the "ethos of the Internet," (p.9) which he compares to the Free/Libre Open Source Software movement (Meiszner et al., cited in McAndrew, 2010) wherein "software is produced under a license where it can be freely used but is also in a form where the source code is available to be edited, modified and improved" (p. 9). In what will become a familiar application, the locus of McAndrew's analysis and recommendation is higher education, but this reference to open source as a spiritual progenitor of current online open education points the way to applications outside of K-20.

In his article recommending open source software as a significant part of a collaborative ecosystem in higher education, Dolphin (2014) defines open source software thusly: "Applied to software in a narrow sense, the term open-source refers to a licensing model that allows access to, and modification of, source code with varying degrees of license-dependent restrictions on the subsequent use and distribution of that code" (p. 50). This emphasis upon determinant licensing is an important commonality between Open Education and Open Source Software. Sometimes, to make this

connection even more clear, the term *open-source* is applied in lieu of *open* as a descriptor to a given genre of educational phenomena, as in the case of open-source curriculum (Kurshan, 2007).

Open source software grew out of the hacker mindset that flourished alongside the development of the personal computer in the 1960s and 1970s (Couros, 2008). The principal idea behind open source software is that the source code of an openly developed program should be made freely available to allow others to adapt, modify, and improve upon the code in various iterations, but that the source code itself should never be commoditized out of access, or the process of iteration stalls and fails. Iteration of freely available source code is a key feature in both Open Source Software and Free and Open Source Software (FOSS), and is what separates proprietary programming codes, such as those used to develop Microsoft's Internet Explorer browser and Windows operating system, from their open cousins such as the codes used to create Mozilla's popular Firefox browser and the well-known, and highly iterated, open-source operating system Linux (Couros, 2008).

An understanding of open source software helps to illuminate some of the finer points of the strict interpretation of openness when applied to open education. For example, as Guhlin (2007) notes in his "Case for open source":

> Essentially, open source software differs from commercially developed, or closed source, software in that the application's source code is publicly distributed and available for modification by users. Open source relies to a great extent on the free software movement. In this context, the term free refers not to cost but to the freedom users have to modify the source code (p. 16).

It is this double meaning of "free" to include the freedom to modify the original product that marks an important distinction between many supposedly open educational products, such as MOOCs, and their truly open cousins. A MOOC may be free in terms of cost, but

it borrows its sense of openness more from the world of classic open and distance learning (ODL) than from the open-source ethos that guides open education as a transformative notion, in that it is available at no- or low-cost, at scale, to distance learners, but it is not, generally speaking, free to be modified, especially if it uses closed-source components, such as licensed software, a proprietary learning management system (LMS), proprietary learning objects (LOs), non-alterable PDFs, and even purchased images or copyrighted text. For example, a presentation uploaded as a PDF is effectively closed in that individual slides cannot be meaningfully accessed for imagery, diagrams, or formatting. Even something as simple as a course document published in a Word .docx format creates issues for users who might wish to download and translate the document, for it presupposes that users have access to proprietary software that can open the file. In the world of open source, the source code itself is available for free, and is also free to be modified at will. At a foundational level, the product is violable. This violability is what makes it transformational at scale.

This transformative sense of open source in education is captured in Guhlin's (2007) explication of MIT's OpenCourseWare project, in which he challenges others to open up their curricula and resources in a manner akin to MIT, who has made available materials from over two thousand courses, and directly compares the potential impact to that of open source software. Certainly, if educators were able to get inside the "guts" of MIT courses to mine them for nuggets of instructional materials that they could incorporate in their own courses, the comparison would be apt. Unfortunately, this is not the case, as MIT uses too many proprietary elements to allow for such iteration. Another problem with Guhlin's challenge is that it presumes that all institutions have the financial and systemic advantages enjoyed by MIT, and as we shall see in our later discussion openness in higher education (HE), this may be a situation whereby the expectation of

openness may hit developing scholars and institutions harder than it does larger, more established universities. The proliferation of western ideologies and educational methods at scale is not unproblematic either, and remains in need of critical considerations unmet in the articles cited heretofore; nonetheless, the ability to be taken up and modified is a key foundational distinction between certain, commonly "open" educational resources - which may or may not be "openwashed" (see below) - and the truly open class of educational resources which this study ultimately endeavors to establish as proliferative in its possibilities.

(Mis)understanding Contemporary Openness

At the level of semantics, the term "open" itself has lent itself to misunderstanding by virtue of its usage in multiple contexts, i.e., the Open University, Open and Distance Learning, and Open Courseware, among others. The previous accounts focused on points of agreement within the field of open education, but even a cursory glance at the source literature reveals a convoluted depth beyond the placid surface. A more nuanced understanding of the term serves to productively complicate a governing conception of openness in education.

The term "open" is often bandied about in the literature as catch-all term describing cost (free) and accessibility (wide, or at least to those with reliable and effective connections to the Internet). As a result, many resources and practices are described as being open despite the fact that they fall far short of the definitions previously enumerated. The internal tension within the field concerning the application and misapplication of the term, "open" as it used in the context of online education is captured with great passion in Martin Weller's (2013) article, "The battle for open - a perspective." Weller argues that while parts of the battle have been "won" - including the

acceptance of openness as a "valid approach" (p. 4) - there is still much to do maximize the potential of the open education movement, such as determining the nature of openness across diverse contexts (p. 12). Weller draws an analogy between the phenomenon of "greenwashing" (p. 3) in the environmental movement and the current corporate practice of "openwashing" (p. 4) deployed as "a means to make profit" (p. 11). In both instances, a trusted term is deployed cynically to trade on the goodwill of economic actors who desire to make ethical productive or consumptive decisions.

A good example of openwashing in action may be found in Udacity's Open Education Alliance ("Open Education Alliance: Create the Workforce of Tomorrow," 2015), which features highly touted corporate partnerships with some of the biggest companies in the world. Sure, some courses are free, if not truly open, but it doesn't take long to find one, like the Facebook-developed "Data Analysis with an 'R'" that comes with the hefty price tag of a $199.00 subscription to the full Udacity platform, although watered-down access to some course materials is offered for free, albeit with conspicuous strike-marks through the aspects of the course only available to paying customers. Such tactics are classic bait-and-switch and betray the profit motive underlying the cooption of "open education" by Udacity and its corporate partners. Wiley's (2008) "2005-2012: The opencourse wars" - a fictional account of a post-open apocalypse wherein corporate powers enclose the open commons and commoditize that which was freely given to the detriment of both educational producers and consumers - perfectly captures the sense of urgency facing proponents of open education. Because of its connection to licensing and subsequent market deployment, the label has meaning, now and in the future, and this meaning complicates efforts to "open" education. As Weller (2013) states, the question is no longer, "'do you want to be open?' but rather 'what type of openness do you want?'" (p. 12).

A historical understanding of openness helps establish the context necessary to properly answer that question, which is why the present study introduced itself as a descendent of the tradition of open education that stretches back at least as far as the Open University ("History of the OU," 2014). McAndrew (2010) likewise traces the history of openness in education back to the Open University, but he does so to help illustrate that the classical sense of "open" learning that was the hallmark of that institution no longer applies in "the new world of openness" (p. 3). This distinction is important, for it illustrates the precision of contemporary usage, and helps to hint at hint at some of the misunderstanding that can arise when classical openness, i.e. "open" access in the model of Open and Distance Learning (ODL), is mistaken for the radical sense of the term under current consideration.

Notes Toward a Working Definition of Open Education

Despite the commonalities noted above and the critical identification of the openwashing phenomenon**,** after surveying the literature I have to agree with Panke and Seuffert (2013) that despite the popularity of the terminology, there is as of yet no consensus on the scope or classification of Open Educational Resources and would add that there is even less on the broader category of Open Education itself. Therefore, there exists a need to establish a working definition of my own to be applied in all uses of the term over the duration of this project.

In their definition of OER, Atkins et al. (2007) echo some of the common features touched upon so far: varied teaching, learning, and research resources that allow for free re-use and repurposing by others, either through licensing or full location in the public domain. Jézégou provides a sufficiently encompassing definition of openness in the context of education: “openness refers to a set of flexible and empowering educative

environments whose main property is to provide freedom of choice to learners so that they can exercise control over their training processes and learning situations" (cited in Jézégou, 2013, p. 186). I agree with Bradshaw, Younie, and Jones (2013) that some aspects of these definitions are not necessarily new to education, for resources have always been shared freely amongst educators, but perhaps at the local level or through personal networks. What distinguishes the current moment in Open Education is the ability of technology to multiply and proliferate the creation, sharing, and adaptation of Open Education practices and resources (Bradshaw, Younie, and Jones, p. 187), but many conceptions of Open Education seem to lose their connection to traditional modes of learning that take place in analog, not digital, settings. Iiyoshi and Kumar (2008) emphasize the need to connect Open Education to the best of what works in traditional education when they state what they regard as a "key tenet of open education": "education can be improved by making educational assets visible and accessible, and by harnessing the collective wisdom of a community of practice and reflection" (p. 2). The conceit of open online education is that this can be done at scale using the networked resources made available by the Internet.

Taking into account the various aspects of openness delineated so far, the working definition of Open Education I shall apply moving forward is as follows: *Open Education describes the creation and use of educational resources and accordant practices in a manner that maximizes their ability to proliferate in a collective manner that serves learner needs across diverse global settings in both digital and analog forms, through reuse, redistribution, revision, and remixing*. Several important aspects of the various conceptions previously discussed are implicit in this definition: the use of broad terms like "resources" and "practices" covers the full array of possible open configurations: Data, information, code, media, learning objects, research results, teaching materials and

artifacts may all be considered as educational resources for the purposes of this definition. Likewise with practices, which may include teaching, learning, pedagogy, curricularizing, research, scholarship, publishing, course creation, policy-making, and systems-building, among others. The appeal to diverse learners in global settings helps to keep the focus on the end-user and serves as a reminder that the audience for Open Education is and should be international. By applying this definition to both digital and analog domains, the most current use of the term to describe practices on virtual networks such as the World Wide Web is covered, but so are more traditional uses of physical media in in-person teaching. The use of the "4 Rs" implies the application of the minimal licensing restrictions possible: the most permissive and least restrictive Creative Commons licenses, CC BY or CC BY-SA, are preferred.

As an amalgam of previous definitions, this conception of Open Education brings with it the complications shared by its forebears, and while, as shall be shown, various researchers have treated the unique challenges and opportunities posed by Open Education, few have engaged the topic at a sufficiently theoretical and/or critical level. In spite, or perhaps because, of the potential ability of Open Education to disrupt current systems of centralized and commercialized systems of education, as a movement it remains undertheorized. Kolesnikova (2010) notes that, "[b]ecause it breaks down the monopoly on knowledge, open education offers the possibility of 'noncommercial' exchange of informational, educational, social, psychological, organizational, and pedagogical resources" (p. 4), but "[n]owadays the term 'open education' is seen, from the standpoint of pedagogy, primarily in technical, organizational, administrative, and methodological terms" (p. 5). Thus, despite the possible systemic effects of Open Education's proliferation, the movement remains confined, in the research at least, to internal discussions of limited scope, lacking the large-scale perspective to be gained

from a theoretical approach, as well as the reflective catharsis of focused criticism. Likewise, Cox (2013) found, in her study of faculty resistance to OER contribution, that "after an extensive search of the literature . . . there is a gap in the theoretical framing of research into OER" (p. 148). The current review of literature will focus on illuminating where those gaps exist, and how such gaps open the way for the proposed theoretical research. Because of the uniquely proliferative nature of Open Education, it will first be important to account for the cultural, socioeconomic, and political issues at play in the potential growth of the movement.

SOCIOECONOMIC, CULTURAL, AND POLITICAL ISSUES RAISED BY OPEN EDUCATION

Up to this point, specific common points of reference have been used to map a broad class of openness in education that nonetheless varies internally in terms of which aspects of openness is accentuated, and to what extent. This review will now consider openness in education relative to more specific conditions of society, economics, culture, and politics, including issues of access, social justice, and power - such as they may exist in the current literature - in order to identify relevant gaps in the research that remain to be addressed. In order to explicate the level of critical engagement at play in the literature, a more detailed account of the authors' internal arguments is required. However, because there is little in the current literature that specifically addresses inequality of access within the context of Open Education, I shall begin with the broader concept of the digital divide, which has been successfully applied to wider categories of Internet access and use.

Introduction: The Digital Divide

The success of Open Education is predicated on a requisite level of information literacy amongst prospective users, and any discussion of equity in open education would

be incomplete without accounting for such gaps in informational and digital literacies that affect multiple categories of prospective learners. Information literacy has been defined as, " the set of skills needed to find, retrieve, analyze, and use information" ("Introduction to Information Literacy," 2015). Who has or does not have these skills, or access to the information itself, is the simplest way to understand what is commonly called the "digital divide" (Norris, 2001). Van Dijk (cited in van Dijk & Hacker, 2003) has identified four types of access barriers: *mental*, deriving from lacks of core experiences; *material*, which is probably the most widely researched, as it involves the physical possession of computing tools; *skills*, which relates to user-experience and social supports; and *usage*, which implies a whole host of other variables that affect the opportunities and purposes to which access is put to use (p. 316). Kularski (cited in Antonio and Tuffley, 2014) emphasizes the recursive nature of the digital divide: Absent real and enduring physical access to information technology, learners can never develop the skills necessary to engage and profit from online resources. Yet, without the necessary skills of informational literacy, access in and of itself is practically meaningless. The question of usage is an important factor that has complicated contemporary understandings of the digital divide beyond mere consideration of the who does or does not have access to computing resources (van Dijk & Hacker, 2003).

The true extent of the digital divide may be seen in the current research on both access and resultant usage. In terms of mere access the digital divide is manifested in terms of race (Wilson, Wallin, & Reiser, 2003); gender (Cooper, 2006); socioeconomic status (Wilson, Wallin, & Reiser, 2003); age (de Almeida, et al., 2012); disability (Dobransky & Hargittai, 2006); and geographic - both rural vs. urban (Parker, 2000) and global vs. regional (Gujral and Kumar, 2006) - location. In terms of usage, no single group is monolithic, either, for gaps can exist within groups, such as those that exist

across categories of young learners (de Almeida, et al. 2012) once simplistically labeled as "digital natives" (Prensky, 2010).

Even within groups with similar levels of access, variability exists regarding specific usage types (Liebenberg, Chetty, & Prinsloo, 2012), with some users finding more success with specific resources than with others with which they have less experience or to which they have had limited access in the past. This intergroup variability makes the digital divide an important consideration for instructional designers in open contexts (Gujral and Kumar, 2006), for access - and by extension, educational use - is a "multifaceted, dynamic construct embedded in broader socioeconomic, political, environmental, and technological realities" (Liebenberg, Chetty, & Prinsloom 2012, p. 265). As such, even with rates of access and use on the rise, the inequalities engendered by the digital divide may serve to reproduce and perhaps even fortify historical structures of domination (Castells, 2009) by embedding oppressive and exclusionary practices and beliefs in the digital fabric of new educational systems.

While there has been some work on overcoming the digital divide in terms of open and distance learning (ODL) - as is the context for most of the instances heretofore cited - the topic is under-researched in terms of extra-institutional access and use of open educational resources. Smith and Casserly (2006) remain optimistic about the promise of OER to close international gaps in education, even while they note that specific nations and peoples, such as those of sub-Saharan Africa, are falling further behind their peers in more developed economies that feature a high level of Internet saturation. Lane (2009) notes that while openness in education may hold potential to reduce educational inequality, it could also help to "exacerbate" (p. 9) the digital divide by tying educational opportunity to complicated factors of access and usability.

Another unintended consequence of open education is the possible removal of important supports that have enabled the success of marginalized learners in traditional learning settings such as first generation college students and particularly those of color. While there is surprisingly little research on specifically race-, class-, or gender-specific issues within Open Education, in the slightly more traditional context of Open and Distance Learning supportive educational relationships have been shown to be an important factor in students' impressions of academic quality (Richardson, Long, & Woodley, 2003). In the proposed setting of Open Education, where faculty relationships are either absent or radically decentered, there exists a need to critically consider the social aspects of learning that have supported learning in the present sense. This is important to consider because for African-American students at both predominantly white and historically black colleges and universities, positive faculty relationships have been shown to be an important factor in academic achievement (Allen, 1992). While all students benefit from high-quality relationships with faculty, it has been demonstrated that for students of color, such relationships are an even more significant predictor of learning (Lundberg & Schreiner, 2004). Absent tutors, teachers, and faculty in the traditional senses in which they are understood within both ODL and Higher Ed, will the radical self-reliance present in Open Education prove to be a hindrance or an asset? In order to properly evaluate the liberatory potential of Open Education, my eventual theoretical analysis will need to account for both the digital divide and any possible disruption to extant educational support insofar as it has enabled the success of students who might otherwise struggle. For now, I will return to an account of the research more specifically focused within the emerging discourse of openness in education.

Global Inequality and Educational Colonialism

All too often, discussions of barriers affecting entry into the open ecosystem ignore the real obstacles that exist in terms of status, equity, and culture. When barriers to open education are discussed, they often tend to focus on pragmatic issues such as cost, exposure, adoption, motivation, and copyright (Hilton and Wiley, 2010) or operational concerns such as issues surrounding reuse, fragmentation, infrastructure cost, intellectual property, quality control, and sustainability (Baranuik, 2008, pp. 231-232). However, as Lee explains in his slightly more balanced account of the technical, pedagogical, and cultural challenges posed by open education, "Cultural barrier(s) - an even greater hurdle - must still be overcome if we are to achieve the vision of openness." (p. 53). Unfortunately, like many other commentators who opine on obstacles to openness, Lee neglects a full account of cultural dimensions - which he describes simply as policy decisions and individual attitudes - in favor of the more easily considered technical obstacles.

Research considering openness from a global perspective falls along a spectrum of critical engagement, running from well-intentioned, but obtuse (Rossinni, 2010) to more considered (Donabedian and Carey, 2011) and measured (Richter and McPherson, 2012). Rossini (2010) adopts a classical, if abstract, liberal perspective that values traditional democracy and sees education as a reasonable accomplice to the spread of global capitalism. In this way, her thought-piece betrays a notable lack of critical reflection: she is aware enough to champion the adoption of open knowledge products as a central force of democratic social movement-building, but not quite analytical enough to problematize the cultural imperialism underlying her desire to "spread [the] benefits [of education and science] around the globe to all peoples and nations" (p. 68). A more critical strand of classical liberalism runs through Donabedian and Carey's (2011) "Open

access and liberal education: A look at Armenia, Azerbaijan, and Georgia," wherein the authors argue that the open access movement is an important weapon in the fight for information freedom and participation in transparent and informed governance. In these countries, advocates for open access scholarship have to contend with access control and Internet filtering (Donabedian and Carey, 2011, p. 202). When placed in the context of western academic publishing excess and inflationary complicity, the meager budgets of these eastern European states make the availability of open access journals and research more readily discernable as a cultural necessity rather than a technological thought experiment.

When open education as a vehicle for global social justice is considered from an academic perspective aligned with the well-established distance education movement, the results are even more specific and critical, and the optimism much more guarded. Such is the case in Richter and McPherson's (2012) "Open educational resources: Education for the World?" wherein the authors counter suggestions that OER can help achieve global education justice (D'Antoni, cited in Richter and McPherson, 2012) by positing that "the mere provision of OER is an overly optimistic idea and will not serve to resolve educational deficits in developing countries" (p. 202). Rather than dismiss the value of OER out of hand, the authors make a critical case to establish what they view as a more realistic role OER can play in overcoming the so-called "educational gap" said to exist between "developing" and "industrialized" (p. 202) countries, provided supports are enacted beyond "mere provision." Importantly, they also identify the importance of cultural accommodation in successful OER adoption, albeit in strictly pragmatic terms.

This pragmatic tone extends to the attention Richter and McPherson (2012) provide to an element missing in other aspects of the current research: the historical effects of colonialism. The mechanics of these effects, and the possible consequences

thereof, are not detailed in any meaningful way. Instead, the authors focus on practical aspects of the colonial project such as language issues and contextual gaps. Even when a lack of cultural diversity is addressed, the detail spent outlining the deficit, or of contributing historical and political conditions, is sorely missing. More attention is paid to the notions of educational privilege and literacy, and here the authors provide telling context to the literacy question. Of particular note, Richter and McPherson criticize the ongoing focus in the research on open education on higher education, noting that the needs of many "developing countries" exist at the level of "basic education," including literacy and basic IT skills (pp. 206-207). Unfortunately, Richter and McPherson do not sufficiently problematize the epistemological assumptions inherent in their positions, focusing instead on practical solutions to help justify changes in social behaviors, structures, and systems. In so doing, they essentially endorse a vision of global OER implementation that advocates the denigration of native and local behaviors, structures, and systems, so long as a proper context is provided that allows the OER regime in question to take root in the local educational ecosystem.

The tone-deafness to the cultural colonialism possibly at play within efforts to encourage the spread of OER is echoed in Caswell, et al.'s (2008) emphasis on the technical and professional educational aspects of the UN Universal Declaration on Human Rights. Caswell, et al. base their report on a consideration of Open CourseWare (OCW) as a representative component of open educational resources (OER) but fail to question the possible epistemological side effects that could result their valuation of the technical and professional at the expense of the creative and humanistic aspects of education. As this study hopes to show, the epistemologies represented by the prevalent form of OCW are in need of critical analysis.

Issues Affecting Open CourseWare and Massive Open Online Courses

Open CourseWare (OCW) - in the form of MOOCs, MIT's seminal OCW initiative (and current EdX partnership), and Coursera, to name a few - is perhaps the form of open education most immediately recognizable to professionals in Higher Education (HE). The audience for OCW as featured in the work of Caswell et al. (2008) is HE, so the economics and politics of usage they describe fall into the domain of the global university system of production and distribution. They accentuate the origin of the OCW in western academic institutionalism and the rapid global proliferation of OCW and, by extension, OER themselves. Neither of these points is explored critically, but rather presented as part of a metanarrative of well-meaning success for the benevolent forces of global education. The epistemology of OCW is presented uncritically, as well: when listing the benefits of OCW, the authors proudly cite the MIT OCW mission statement, "to advance knowledge and educate students in science, technology, and other areas of scholarship that will best serve the nation and world in the 21st century" (pp. 8-9), without troubling the specific absence of the arts or humanities in that mission - presumably, they are part of the "other areas of scholarship," seemingly included as a disclaimer for the empirical (and arguably statist) bias at the heart of the project. The lack of a critical epistemology, as seen in the work of Richter & McPherson (2012) and Caswell, et al. (2008) is a consistent feature in the research on OCWs and MOOCs.

A more critical, if less detailed, report on the global reach of OER is contained in the opinion piece written by Gayle Christensen and Brandon Alcorn (2014) to answer the question, "[c]an free, online university courses really create equality of access to higher education?" Based largely on a University of Pennsylvania survey of students using Massive Open Online Courses (MOOCs) accessed through Coursera, the authors state unequivocally that, "[a]t least in their early stages, these courses are not providing the

revolution in access that proponents claim" (p. 1). According to their analysis of the survey, a sharp majority of MOOC users are educated and employed males in developed countries, which is one of the few analyses of Open Education I encountered that considered, even briefly, differences in open access - to say nothing of race - although the authors do point out the role of the digital divide in terms of global access. What makes Christensen's and Alcorn's analysis particularly interesting is that both authors are directors of global initiatives at the university who sponsored the survey, which received over 35,000 responses. Their positionality lends special credence to their conclusion:

> [u]ltimately, MOOCs are not by themselves a mechanism for development but require certain levels of education and technology. They are reaching millions of people around the world, but to truly revolutionize access, improvements in the broader education and technology ecosystem are vital (p. 2).

If what is needed are systemic improvements to entire educational and technological ecosystem, then the dearth of studies that employ the necessary meta-perspective points to a definite need in that regard. Such is the need that the present report seeks to fill at the level of theory.

What does exist in the literature are studies that focus on the specific use of open online resources, broadly considered to include MOOCs and courses utilizing open content in hybrid settings, in higher education. In addition to the studies and reports discussed thus far, Morgan and Carey (2009) use a blended model of instructor-led courses integrating open content in a collaborative multinational online setting to illustrate what it might take to successfully utilize open resources in more traditional institutional settings. This approach, which they call the "Open Course Model" (p. 1), is useful to the present study in that it highlights the weakness of a purely online model to overcome linguistic and cultural differences between open content and the prospective learner. When seen as part of a cultural shift (p. 12) within the academy to embrace the

use and creation of open educational resources, this work is also applicable to the meta-perspective employed in this dissertation report. However, the utility of this model regarding the current review is limited by its dependency on traditional institutional structures and vague application of OER concepts.

Open Education: An Extra-Institutional Perspective

While more work is needed to address the use of specific Open Educational Resources outside of traditional academic frameworks, there have been some representative studies that suggest the potential theoretical issues that arise when the OEM is considered as more than a mere instrument of traditional higher education. While operating from a position that values higher education as an "unalloyed good," Edelson (2013, p. 2) nonetheless addresses the issue of credentialization outside the recognized bounds of the university degree. According to Edelson, "The advent of MOOCs and the prospect of awarding badges for individual courses drop credentialing to a new and lower level, bringing with it asymmetric implications of status by association with higher-priced, labor-intensive full-term degrees" (p. 4). This is an important phenomenon to consider, for if open educational resources are proffered as a substitute to traditional degrees *on the terms of the degree-granting institutions*, (i.e., in a system that still values degrees over the education they are meant to represent) then this asymmetrical value could have dire consequences for those outside of the institution who are forced to "settle" for an online credential gained using open resources. If the deployment of open education results in a tiered regime of credentialization, then open learners, presumably those too impoverished and marginalized to gain access to the upper level of the dual system, will suffer economically, socially, and politically. For example, I might be able to earn a badge using the growing Mozilla Open Badge framework ("Mozilla OpenBadges,"

2015), but as long as such badges are viewed in comparison to full degrees granted by universities, then ownership of such credentials is devalued, relatively speaking. Despite the risks afforded by the possibility of underemployed open learners, Edelson remains hopeful that even this scenario could result in "a flourishing of creativity and invention engendering still greater investment in universal further education" (p. 7). His vague optimism seems grounded in a consideration of open resources as beneficial to current educational structures. To Edelson, closing the education gap means doing so in the context of higher education only. Kurshan (2007) posits that open curriculum projects could likewise help close the education gap in higher education, but Ally and Samaka (2013) dare to approach the closing of the gap from an extra-scholastic perspective.

In their consideration of mobile technology and open education, Ally and Samaka (2013) take a step that few other researchers have been willing to and explicitly distance open education from traditional educational structures:

> In a world where there is an information explosion and constant changes in content, having students completing long courses and programs may not be appropriate anymore. The learner should be the focus of the OER not the developer of the OER or the system. Educators should not develop and deliver OER to fit the current education system (p. 17).

Instead they posit a world where education is accessible, via mobile device, anywhere and any time. Personal technology is presented as a possible solution to the need for locally created and accessible informational resources, albeit outside of traditional regimes of credentialization. However, a major weakness of the mobile model presented by Ally and Samaka (2013), beyond technical issues of device appropriateness, is that it seems to conflate information and education. As Lynch (2008) points out, such conflation is problematic, in that,

> [a]ccess to education is not the same things as access to information, although the two are intimately related and might often reasonably be viewed as two endpoints

> of a continuum. Unquestionably, access to information, knowledge, and educational resources offers opportunities for learning, but gaining education from these opportunities may be more elusive" (p. 105).

This points to a larger question facing the open education movement: absent a system of assessment and certification, how can we be sure that learning is occurring? While this is a question of sure interest to those in the educational research community, it also serves to indicate the massive shift in personal responsibility and accountability for learning engendered by the proliferation of open educational resources.

The importance of the OEM for global educational equity need not reside in credentialization and can instead be found in concerns over human rights. Although likewise situated in the discourse of higher education, the issue of credentialization is not addressed at all by Geith and Vignare (2008) in their account of using OER to close the gap between educational supply and demand. Instead, they appeal to the notion of human rights to spur engagement with open resources, using Tomasevski's "4-A Framework of the Human Rights Obligations": availability, accessibility, acceptability, and adaptability (cited in Geith and Vignare, 2008, p. 106). Their use of the "4-As" helps to illustrate another framework, beyond the previously discussed system of allowable use via Creative Commons licensing, which could be used to assess openness in education

Regarding the review at hand, perhaps the most germane aspect of Geith and Vignare's work is their emphasis on the necessary adaptability of OER. According to the authors, through the co-occurrence of the afore-mentioned four-As, adaptability unlocks the potential of OER to address all four of Tomasevski's human rights by, "providing not only choice, but also the ability to change the resource for local contexts and uses" (p. 120). This assertion reserves a space for indigenous participation in the cycle of OER creation and use, and further bolsters the application of the 4A framework as a key component of OER's liberatory potential. However, while the authors are successful in

deploying their own conceptual framework for OER based upon a specific understanding of human rights, their approach to deploying that framework fails to critically account for issues of power and domination that might impinge upon those rights.

Open Education and Power

To my way of thinking, any discussion of social justice and equity is incomplete without an account of power and domination, at both the levels of systems and subjectivity. Where power has been addressed in the research on Open Education as a precipitating factor in oppressive educational institutions, it has often been treated only superficially on a structural level, as in Alec Couros' (2008) qualitative explication of the group perceptions and beliefs of educators immersed in Open Course culture. Couros conducts his descriptive and interpretive project utilizing grounded theory, but in his discussion of barriers to openness, he uses a structural discourse of power to describe the tactics of domination employed by software companies and to help make sense of his subjects' resistance to that domination using open content and publishing. However, by neglecting to investigate the larger discourse of power outside of institutional teaching and learning, and without addressing power at the specific level of the subject, Couros fails to meaningfully situate power as a precipitant or functional component of the larger Open Education Movement.

Unlike Couros, for whom power is a secondary concern, Rhoads, Bervan, and Toven-Lindsey (2013) specifically ground their analysis of the Open Courseware (OCW) movement in issues of power, insisting, importantly, that work in open education is implicated in parallel reforms undertaken under the influence of neoliberal ideology. The authors' tripartite analyses of epistemology, pedagogy, and hegemony is particularly illustrative: the OEM, in its current state, emphasizes certain forms of knowledge and

meaning-making over others, resulting in the epistemological domination of the hard sciences and positivistic systems of knowing - which are themselves frightening in their matricized deployment - over humanistic and pluralistic organization in the virtual educational sphere. According to Rhoads et al., pedagogically speaking, the teaching and learning taking place in open settings is currently too unidirectional - flowing from knower to learner - and insufficiently critical and reflective to allow for transformational learning. The net result of both of the epistemological and pedagogical formations of open learning is that the mechanisms of power are effectively cloaked within immense systems touted as revolutionary, but just as often functioning to maintain the status quo. The technological and fiduciary demands of creating open systems helps to further entrench the positions of power held by dominant institutions and individuals. By hiding the mechanisms of power behind technologically advanced systems that serve to proliferate both tacit and explicit domination, Open Education runs the risk of becoming a weapon of hegemony in the larger context of society served by education. I will return to some of the themes explored by Rhoads, Bervan, and Toven-Lindsey, specifically their grounding of Open Education in a notion of the commons (p. 89; see also Daniel, West, and Mackintosh, 2006) and the potential capture of the movement itself by neoliberal ideology, as aspects of my theoretical framework, but for the purposes of this review their work points the way forward for critical scholarship seeking to examine the macroeffects of openness in education from a theoretical perspective.

In addressing the theoretical limits of his aforementioned study, Couros (2008) concedes, "The data also suggests that revolutionary change may be necessary to fully realize open thinking in education. The open movement, through its inherently critical processes, has the potential to reinvent views of formal education" (pp. 185-186). While, considering the critical weaknesses of prior research, one might argue with the notion that

the open movement is "inherently" critical in anything other than an internal sense, it may be easier to agree with the need to think in terms of revolution when engaging the potential of open educational resources. The extent to which revolutionary thinking is necessary becomes more apparent when we engage the economic literature on open education.

The Economics of Open Education

It is important to consider research that views Open Education from an economic perspective, for reasons both pragmatic and theoretical. In so doing, it becomes apparent that practical concerns dominate the current research. There may be good reason for this: Geith and Vignare (2008) identify three types of research-funded OER -- cost/benefit, third-party, and value-added -- to help make the point that accessing such resources may be free for the learner, but the time, resources, expertise, and bandwidth it takes to produce such resources is most definitely not free. Thus, it understandable for a relatively young movement to concern itself with the existential matter of its own funding. However, a brief survey of some of the studies of open education that incorporate an economic lens reveals a need to critically engage how open learning is, and may be, considered within the larger discourses of power and capital.

I previously discussed representative studies that justify OE through its potential to help close educational gaps of access, credentialization, and basic human rights to education. DeLangen and Bitter (2012) pose the fundamental role played by economic concerns to enable the sustainability of the movement. What is needed, they say, is a sustainable business model governing OER/Open Education. Interestingly, they find impetus in presidential decrees and the work of the Davos World Economic Forum, which based their urgency on the "observation that the current lack of adequately

educated people hinders prosperity and will constrain economic growth in the near future" (p. 1). Thus, there exists a pragmatic motive in this economic consideration vastly different from previously discussed pleas for OE grounded in humanistic concerns for global equality and human rights. Instead, the motivating factor is, from the outset, to provide skilled labor for the international economy.

Using a transactional schema as the basis for their analysis, deLangen and Bitter (2012) pose three sets of motivations for covering the costs of Open Education: the public good (worded in terms of organizational or state self-interest, not the humanistic good of the citizenry), efficiency, and marketing (p. 6). The authors' emphasis on "value networks" reflects both the networked nature of open learning and their desire to "shift from prescriptive educational methods toward open learning formats and from monetary earning models towards a value network business model approach" (p. 10). As with any network, such a value network would conceivably be defined by the composure and structure of its compositional nodes, here understood as participants within the economic system. However, despite deLangen and Bitter's stated desire to move beyond a purely monetary exchange system toward a value-exchange model, the origins of their analysis in capitalistic and transactional ideologies illustrates the need to be mindful of the exact participants in open networks at the levels of both production and end use. The danger of ignoring the compositional makeup of seemingly open networks is strikingly rendered by Lamb and Groom (2010) in their article, "Never mind the edupunks; or, the great web 2.0 swindle."

Lamb and Groom (2010) express a hope for the Open Education Movement that is tempered by a growing awareness that open resources are being displaced by free corporate offerings, especially in the institutionalized world inhabited by professional EdTechs. Moreover, they decry as "almost unfair" (p. 54) the expectation that EdTechs

attempt compete with the innovation, research, and development deployed by corporate behemoths such as Google or Apple. In fact, in light of recent cutbacks and limited budgets, these corporate products may prove more efficient and effective that homespun "inferior analogues," so that attempts to compete with locally created products might even be considered "irresponsible," especially in the face of a rapidly changing user base (pp. 54-55). The danger lies in the hidden cost in the use of such free corporate products. Social media such as Facebook and Twitter are now not merely products for end-users, but also data mining operations whereby users themselves are products for advertisers who bear the cost of all that "free content." For Google Apps - which, in full disclosure, I myself have used and promoted extensively for several years as a certified Google App trainer - the user sacrifices her/his privacy and data to the advertising might of Google analytics. As Groom and Lamb cogently put it, the use of these tools serves to "reinforce, however indirectly, the 'advertised life,' the incursion of commoditization ever deeper into human thought and interaction. The question is whether there is a role for higher education to promote 'safe spaces' free of this influence" (p. 55). In their account, EdTechs are morally obligated to pay attention to the structure of their networks, for the movement itself lies at an important crossroads: The decisions made can either reclaim the open nature of our open networks or allow them to be subsumed by openwashed corporate resources. Nowhere is the crossroads of corporatocracy and openwashing more apparent than in the burgeoning massively open online course (MOOC) movement.

More Problems with MOOCs

Recently, Massively Open Online Courses (MOOCs) have become indicted in the corporatization of higher education through their enclosure by private and semi-private capital. MOOCs rose to prominence as a result of the pioneering efforts of George

Siemens and Stephen Downes, who presented a new kind of online course, called "Connectivism and Connective Knowledge," through the University of Manitoba in 2008. Dave Cormier and Bryan Alexander later coined the acronym MOOC to describe that first course (John, 2012). Simply put, a MOOC is "an online course with the option of free and open registration, a publicly shared curriculum, and open-ended outcomes" (McAuley, Stewart, Siemens, & Cormier, 2010). As previously stated, the present study doesn't consider MOOCs to be truly open for a variety of reasons related to the potentially closed nature of their components. In light of the need to remain mindful of the economic source of a given resource, you can add quasi-corporate funding to the list of reasons why MOOCs are not just not-open but may in fact represent a threat to openness itself. A case in point is the recent switch of noted MOOC provider Udacity from a focus on higher education to a focus on corporate training (Siemens, 2013). Udacity is an interesting example of a MOOC funded by venture capital that, upon struggling with for-profit online learning (Westervelt, 2013), was arguably forced by its corporate backers to change to a more profitable approach. The danger represented by this shift is that the failure of Udacity casts a pall over other resources lumped together as equal member of the open movement (Siemens, 2013). As will be discussed in the body of this report, other MOOCs and open resources of various stripes have foundational backing that also raises important questions about corporate influence.

While the practice of thinking about open and free resources from a business perspective may seem counter-intuitive, this move has some real practical enrollment benefits. In addition to the sustainability argument outlined above, there has also been a concerted effort to portray the cost-saving benefits of open resources. In a brief prepared for the Center for American Progress, pioneering open advocate David Wiley, Creative Commons leader Cable Green, and Louis Soares (2012) make this case by citing the

infinitesimally small cost of sharing resources online, so low as to be perfectly free (note that the sharing is low-cost - not the creation of said resources). They also stress the culture of sharing that is the hallmark of OER and refer to the strength in numbers represented by efforts to leverage the Internet, but such a culture raises important issues of copyright inherent in collaborative open educational work. The use of creative commons licensing mentioned above and elsewhere in this review is one way for the open community to license itself, but many - especially those working within institutions of higher education - must still deal with the onerous restrictions of United States copyright law.

Copyright law has direct effects on the ability to and price of doing business in Open Education. Historically, colleges and universities have provided exemptions from their rights to faculty scholarship under the work-for-hire clause of United States copyright law (Dames, 2013). Open educational resources raise new concerns, as they may or may not be considered scholarship by institutions of higher education. Dames considers this from a purely legal perspective and makes the point that the existing exemption to university copyrights under work-for-hire are political, not legal, exceptions made when a time when universities were much less financially constrained then they currently are (p. 24). Thus, the advent of open educational resources, especially MOOCs, could provide universities with a new way to extend their instructional reach and, by extension, their financial stake in professorial output: "In short, MOOCs give universities cover to begin rewriting rules about faculty copyright ownership in scholarship" (p. 24). Uncertainty over copyright protocols has been shown to be a factor in faculty resistance to open practices (Mtebe and Raismo, 2014).

The possible extension of institutional copyright to professorial output serves as an example of the remarkable ability of capital, through its institutional entrenchment, to

exercise power over a common resource, in this case collective intellectual content. To excel the workaround presented by the deployment of alternative licensing such as that established by Creative Commons, it might be worthwhile to consider a paradigm shift in the economic politics of global science. Peters puts forward such a new paradigm, first in his seminal work on open science economy (2009) and later in his extension of that work to what he calls the openness form of the knowledge economy (2010). According to Peters: "the openness movement with its reinforcing structure of overlapping networks of production, access, publishing, archiving, and distribution provide an emerging architecture of alterative educational globalization not wedded to existing neoliberal forms" (2009, p. 203). I will return to Peters' work in the body of this research, as it typifies the level of theoretical conceptualization the present study seeks to engage and extend. While there is still a dearth of critical and theoretical research of this type, there is exciting work from which can be constructed a more dynamic account of openness in education from a perspective outside of traditional structures and systems. This review will now turn to attempts to conceptualize openness within the field of education itself.

PUTTING THE "EDUCATION" INTO OPEN EDUCATION

While there are relatively few examples of scholars who critically situate the phenomenon of open education within the larger spheres of politics, culture, and socioeconomics - indeed the field as a whole is under-theorized (Knox, 2013; Cox, 2013) - there have been some efforts to apply theory to open learning in an effort to understand its operation and improve effectiveness. Unfortunately, most of these studies are either merely descriptive and insufficiently critical, or they only deploy theory at the level of a structural framework for larger empirical studies. In addition to the afore-mentioned work by Peters (2009, 2010), important exceptions to this observation are Deimann and Farrow

(2013), Knox (2013), and Veletsianos and Kimmons (2012), all of whose work will be introduced as part of the next discussion will inform the course of the current research.

Learner-Centeredness in Open Education

The individualistic character of Open Education places a natural emphasis on the learner as the nexus of operation. However, the autonomous and decentered nature of open learning renders many traditional educational philosophies, with their emphases on schools, schooling, and teaching, inadequate. To remedy what they view as a lack of sufficient theoretical and philosophical bases in modern accounts of openness in education, Deimann and Farrow (2013) posit the concept of Bildung as a possible "reflective tool" and "point of orientation and regulation" in open education practices (OEP) (p. 347). The authors go on to explore some of the possible applications of their conception of Bildung, both in open education and the larger and older field of distance learning.

In their application of Bildung as a theoretical grounding point for diverse types of learning, typified in their account by open education - but also applied secondarily open and distance learning (ODL) - Deimann and Farrow emphasize the need in both conceptions for an understanding of learning as an ongoing process of becoming. Connecting ODL to the contemporary phenomenon of open learning, Wei (2010) emphasizes the learner-centered focus in both: "the essence of open learning is accessibility and flexibility, with a student centered approach to teaching. With the coming of the knowledge-based economy, the idea of lifelong learning prevails in every sector of society" (p. 48). While both Deimann & Farrow and Wei locate the learner-centeredness, through Bildung and lifelong learning, respectively, of open forms of learning, of particular interest is the extent to which both explicitly account for open

learning separately from traditional notions of ODL. Thus, while Open Education may share some conceptual commonalities with ODL, it may be observed that the theoretical issues raised by Open Education differ from those raised by ODL, specifically in that there may be less formal affiliation with a structured or extant educational institution.

A conception of open learning that focuses on learners independent of such structures will be an important part of the present study. One factor supporting the exploration of open learning outside of traditional structures is the perceived devaluation of open education when compared to more selective forms of university schooling (Joo, 2014). Absent traditional structures such as those represented by organized universities, colleges, and other degree-granting institutions, curriculum emerges as an important organizing principle for open education.

Open Curriculum

Corrigan and Ng-A-Fook (2012) bring Open Education squarely into the domain of curriculum studies, and sketch a lineage of open access in the service of curriculum from the pioneering work of Jane Addams and Paulo Freire to the current efforts of "edupunks" like Jim Groom (pp. 59-61). Efforts at an "open curriculum" are grounded in the existence of open access resources, including both widely available informative online institutions such as Wikipedia and emerging academic structures such as open access journals (pp. 61-62). Importantly, Corrigan and Ng-A-Fook base their report of the current state of Open Education in Curriculum Studies on the number of open access journals of note within the field, finding that while there are some positive signs, there is still room for improvement (p. 68). Particularly troubling is the low impact score ascribed to the majority of Open Access journals, although the authors do cite research that suggests a positive effect on such impact scores when scholarship is made more freely

available (Harnad and Brody, cited in Corrigan and Ng-A-Fook, p. 68). While acknowledging that technology itself is no panacea, Corrigan and Ng-A-Fook nonetheless praise the disruptive potential of an open curriculum built using open resources:

> Open Ed and OA afford many possibilities to expose the delusions of liberal democratic education. The hegemonies that currently limit economic capital in turn limit the social capital conferred by educational attainment. The substantive task before educators is to use the distributed expertise available through the Creative Commons and in turn decentre higher education, and the research conducted from within in it, from its privileged position, flowing instead into the networked public margins of Cyberspace.

Of particular interest to this study is a resource cited in by Corrigan and Ng-A-Fook as an example of the collaborative potential of open curricula projects: Curriki (2014). In its current form, Curriki is an easily accessible wiki-type searchable repository of open educational resources, but at the time of its inception it focused more heavily on curriculum than most similar repositories. This was the promise elucidated by former Curriki Executive Director, Barbara Kurshan, in her brief piece, "How Open-Source Curriculum Could Help Bridge the Educational Divide" (2007). Kurshan, for one, is firm in her voiced dedication to open principles aligned with the Four Rs. The same may not be said of Levy (2009), who focuses more on the open access aspect of Curriki, and whose appraisal, while enthusiastic, fails to fully grasp the portent of true openness when applied to curricula and associated educational materials. Levy's hope that Curriki could provide a boon to cash-strapped districts in need of free resources emphasizes the tricky terrain opened up by a weak notion of openness in education in that "free" does not necessarily mean either quality or equality.

Curricula, by themselves, are of limited value without a meaningful pedagogy in place to enact the learning goals established therein. This research project would likewise

be lacking if it did not account for the role of pedagogy within Open Education. Various researchers have put forward key ideas regarding the unique aspects of learning in an open environment, and a brief consideration of the main theories at play will help to establish the grounding for eventual critical engagement of teaching and learning as they occur within structures of Open Education. The literature treats the use of open resources through considerations of theories of learning undergirding Open Education, the pedagogies at play in learning using open resources, and systemic approaches to open implementation.

Connectivism

Along with theories of social and lifelong learning (Hays and Damron, 2014, pp. ii-vi), connectivism, as exemplified in the work of David Siemens, is a common thread in many accounts of the learning theories underpinning open online education (Hays and Damron, 2014; Kop and Hill, 2008; Couros, 2009; Panke and Seufert, 2013; Neary and Winn, 2012). In his seminal essay introducing connectivism, Siemens (2004) describes his theory of learning thusly:

> Connectivism is the integration of principles explored by chaos, network, and complexity and self-organization theories. Learning is a process that occurs within nebulous environments of shifting core elements – not entirely under the control of the individual. Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or a database), is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of knowing (p. 9).

Siemens posits connectivism as a learning theory that fills in the gaps left by behaviorism, cogntivism, and constructivism by accounting for learning that is exterior to the learner (2004, p.5) in that it is aided by technology and socially networked systems of information (pp. 8-11). Kop and Hill (2008) explicitly denigrate Siemens' effort to posit connectivism as a learning theory at all, instead identifying it as a pedagogical construct

whose premises are already accounted for by preceding theories, especially constructivism. Other scholars have broadened the scope of the learning theories at play within OER alongside connectivism to include activity theory, social constructivism, and theories of practice to promote the idea that no one theory can encapsulate the full breadth of learning possibilities within the OEM (Panke and Seuffert, 2013). As a learning theory conceptualized to expressly describe the mechanism of open learning, connectivism stands as an example of the category of theoretical work within the field that occurs at the level of theories *about* learning in open networks without fully exploring sociocultural and political ramifications *of* the networks thus considered.

Open Pedagogy

Despite the recurrence of specific internal accounts that fail to consider structural or systemic forces at work in open pedagogy, theoretical questions of learning within Open Education are important, for it can never be taken for granted that open structures necessarily engender learning. Questions of pedagogy move the debate on Open Education away from mere information delivery and more in the direction of authentic educational possibility using Open Educational systems. However, even where learning may reliably be said to occur as a result of engagement with open structures, the self-regulating nature of Open Education might mean that students become encapsulated in a filter bubble of their own construction. Kop and Hill (2008) lament the possibility that the changing role of teachers and tutors in a connectivist open system might negatively impact the critical engagement of learners, citing the work of Freire and Macedo to highlight the need for critical understanding. Considerations of the "open student" (Davis, 2010) help to shine a light on the need to adapt our pedagogies to meet the needs of open learners. Peters, Liu, and Ondercin (2012) posit an emerging Open Learning Systems

(OLS) pedagogy that encapsulates the open learner's need for experience, freedom, criticism, interpretation, and technology in virtually all learning situations. Couros (2009), in his study of the use of open source software and Web 2.0 resources with graduate students, encourages the use of pedagogical processes that align with the philosophies of the open source movement, specifically group collaboration and transparency. He terms this formulation, "open, connected, social" (p. 232) and emphasizes its lineage in social cognitive theory, connectivism, and open thinking. Couros' work is instructive for the application of open pedagogy to traditional university coursework but may also be applicable to the present study's focus on learning outside of schools.

Couros' emphasis on the alignment of open content with the pedagogy used to teach that content in traditional settings is echoed by Friesen and Murray (2013). While Friesen and Murray make a valid point about the need to align open teaching to open content, they anchor their triumvirate of "Any Student-Any Teacher-Any Content" (p. 205) in a local assessment and credentialization institution, thus rendering their insights less applicable to decentered and deschooled online open learning. This points to an important question of the role of assessment and credentialization in a pure Open Education context, one that I hope to approach in my research as to the effect of Open Education on our efforts to rethink schooling in the present. Dalziel (2008) points out the need to share effective pedagogies to avert a failure of Open Education, a failure that "could be described as our lack of progress sharing 'pedagogical know-how' among educators. We have systems to run e-learning courses and content to view, but have not captured the teaching processes that expert educators use to bring learning alive in their e-learning courses" (p. 375). The pedagogical shortcomings of the OEM are also the subject of work by Jeremy Knox (2013), who provides a specifically critical reading of

Open Education in his account of the pedagogical and educational rationales that undergird the movement. Knox confirms that the field is "under-theorized" (p. 822) and uses Berlin's (cited in Knox, 2013, p. 822) conception of freedom as either negative or positive liberty to form the basis for his critique of Open Education, a critique that he notes is intended to spur academic reflection and refinement of OE systems, as opposed to a complete indictment of the movement as a whole.

Knox begins his five-fold critique by noting the need for researching the self-direction factor in Open Education as a manifestation of a view of education from the perspective of negative liberty: if constraints are removed, then learning will happen of its own accord without institutional or pedagogical involvement. Knox seeks to complicate this assumption and describes the resultant implicit creation of two-tiered system of HE whereby for some the institution retains its functions of instruction and assessment, while for others instruction is self-directed, but the academy still plays a role in assessment and accreditation. That such a duality fails to account for the inequity currently to be found in personal vs. virtual instruction strikes Knox as problematic. According to Knox, this duality results in a devaluation of HE pedagogy, a devaluation that needs to be problematized and questioned. Once the pedagogy question is settled, the issue becomes one of differentiated assessment, which is the point at which Knox most takes the OEM to task, positing that it is patently unfair to assess open learners with the same instruments used to assess their peers who benefitted from direct instruction within the institution. Thus, a differentiated system of assessment is needed for open learners, which may then require the development of alternative means of recognition and accreditation to meet the needs of virtual learners who exist outside of the bounds of formal institutions. Knox also acknowledges that the OEM must account for its discursive alignment with systems of power and privatization in the development of

alternative tracks designed to compete with extant systems of accreditation and credentialization. Knox's diagnosis of the accessory role to be played by Open Education within the possibly expansive discourse of power is particularly insightful and helps to move his insights beyond mere refinement of systems, although systems -- specifically those that explicitly address open learning -- have proven to be a rich vein for theoretical work in the field.

Systems of Open Learning

Turning from theoretical work regarding pedagogy and learning, I would like to briefly consider some of the theories of structure and application that have been posited as explanatory of Open Education. Importantly, research in this area is limited by its descriptive nature and confinement of theory to a supporting role in more empirical projects. Susnea, et al. (2012) deploy the idea of stigmergy, a self-organizing behavior seen in ants, to conceptualize the mechanics of open learning. To enable proper self-organization, they suggest the use of a peer-to-peer (P2P) file-sharing protocol to enable the creation of decentralized learning databases. P2P is a thriving protocol whose application to education could yield promising results, and the suggestion of its use is an example of the many ways that the technological components of Open Education can be imagined and re-imagined theoretically at this still-early stage of the movement. By facilitating the direct sharing of information between learners, P2P helps to actualize the concept of stigmergy as a regulating and organizational structure in Open Education.

A less mechanistic conception of self-regulation in open learning is put forward by Jézégou (2013) in the theoretical framework for a longer empirical study of how the relative openness of a given learning situation affected the success and experience of gaining typical learning outcomes, in this case, the completion of distance learning as

part of a diploma program. Jézégou cites socio-cognitive research on learner self-regulation and presents the GEODE (Grille d'Evaluation del'Ouverture D'un Environnement éducatif) instrument for assessing the openness of an educative environment. The three categories of GEODE components are: spatiotemporal, pedagogical, and educational mediated communication (Jézégou, cited in Jézégou, 2013, p. 186), and while this framework might prove useful for assessing the relative openness of a given resource, it is the author's positing of self-regulation and self-motivation as key components of open learners that is most applicable to the current discussion of the research on open learning. The work of Susnea, et al. and Jézégou, while informative and conceptual, may be seen as descriptive rather than critical, as might be expected of empirical research.

Like Jézégou (2013), Mourad (2010) locates the conceptual aspect of research in the theoretical framework of a larger empirical study, which further accentuates the need for standalone theoretical work on the subject. Mourad's study of student adoption of "open education innovation" (p. 605) in higher education notes that it is generally accepted that faculty adoption generally precedes student adoption in higher education, and that this is the premise that guides the effort to understand student attitudes toward newer, more open, resources. Operating under a similar premise, and citing the low-level of adoption among students in Tanzania, Mtebe and Raisamo (2014) seek to understand instructors' behavioral intentions in OER use and adoption, and the resultant challenges they face. To better understand instructor behavior, Mtebe and Raisamo apply the unified theory of acceptance and use of technology (UTAUT) model - consisting of four key constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions - in their efforts to study the adoption and use OER in university teaching. As we have seen in other empirical studies related to Open Education, theory is deployed on

a limited basis as part of the framework of this study, and while Mtebe and Raisamo gain some insights to how adoption might be increased, their work is specifically applicable to higher education.

Open Learning in Higher Education

The field of conceptual work on open learning in higher education shares a common theme with much of the other conceptual work we have discussed pertaining to Open Education, namely the lack of a sufficient theoretical grounding. This may be seen in Barr, Gower, and Clayton's (2007) study of faculty adoption of the open Learning Management System (LMS) Moodle in New Zealand higher education, which shares the institutional location of Mtebe and Raisamo's work, but declines to locate itself theoretically as Mtebe and Raisamo did, even if only at the level of a theoretical framework. However, Barr, Gower, and Clayton highlight an aspect of Open Education that has not yet been discussed: the open LMS. Van Rooij (2012) emphasizes the role played by the locus of decision-making in LMS adoption practices, which by implication reveals that the most common such locus is mainly institutional (i.e., higher education). The extra-institutional deployment of open LMS structures seems to be under-researched, especially regarding the theoretical implications of the current institutional bias in open LMS deployment.

Within the institutional framework of current research in Open Education, a number of interesting questions are raised, however, that have implications for the proliferation of OER both within and without host institutions. Perhaps a central such question centers on faculty and institutional will and ability to share resources openly. So-called "open faculty" (Andersen, 2010, p. 42) face a variety of variables that affect their participation in the open exchange of ideas, variables that depend greatly on

disciplinary institutional situation. Moreover, faculties' ability to navigate these variables is confounded by a system that values traditional, or "analog" openness - including contributions made to committees and teams - over "digital" (p. 44) openness, which can be harder to measure and quantify. Pegler (2012) notes that the technical barriers to OER proliferation have been much more researched than the more abstract barriers represented by academics' motivation to reuse and share resources. Pegler engages a specific theoretical framework, namely Herzberg's two-factor theory of motivation (pp. 2-3), in his study, and adapts that theory to isolate three categorical factors affecting OER reuse: technical, quality, and motivation. However, like many of the studies in this review, the context for Pegler's work is higher education and the author concedes that its generalizability outside of HE is limited. An apparent bias in research toward HE settings extends, in some research, to the very viability of Open Education itself. Case in point is Cox's (2013) citation of the assertion by Browne, et al. that "without academic buy-in, OER has no future." (cited in Cox, 2013, p. 149) While Cox stops just short of making such a definitive statement herself, she does emphasize her consideration of the important role to be played by formal academic institutions in the ultimate proliferation of OER (p. 148). In light of Cox's previously cited note on the lack of theoretical framing in OER research, the centrality afforded to HE in discussions of Open Education seems to be worth questioning, as the present study hopes to do in later chapters.

Despite explicit authorial efforts to extend the research on Open Education in Higher Education settings to contexts outside of traditional institutions, some of the insights gleaned from this work might hold promise for applications outside of HE. For example, Armellini and Nie's (2013) research on open curriculum practices in HE isolates four quadrants of open practice in using OER that could easily be applied in contexts outside of HE. According to their formulation, OER can be used as-is or repurposed

during either the design or delivery of a given curriculum (Armellini and Nie, 2013, pp. 7-8). Such considerations could guide others seeking to incorporate OER into their non-traditional forms of pedagogy. That being said, the authors neglect to consider the possible extension of their resultant framework to contexts outside of HE. Theoretical consideration could help to address such shortcomings in original research. Less imagination is needed to apply the work of Abeywardena, Tham, and Raviraja (2013), whose project is to make the growing body of OER more manageable by making it more searchable to the larger field of open users, as their research is never expressly limited to HE applications. The need for indices such as that which they formulate is made more apparent by the extent to which Open Education disrupts existing modes of scholarship, particularly the peer-review process (Abeywardena, Tham, and Raviraja, 2013, pp. 60-61), which is short-circuited by independent publishing of OER. This disruption to traditional modes of academic scholarship is the concern of the literature on the emergent field of open scholarship.

Higher Education and Open Scholarship

Open Scholarship may be considered as part of the Open Education Movement to the extent that access to scholarship and research are important aspects of the educational project, broadly considered, by virtue of the value they hold for both leaners and educators. For learners, open education is conceptually meaningless if supporting knowledge is not accessible and received wisdom cannot be interrogated. To educators, open scholarly practices provide access to important research and guidance regarding their work, while also providing a model for how openness can be successfully incorporated into curriculum and pedagogy. Willinksy (2006) locates open access to scholarly work and research in a history of expanding access to data and information that

has progressed from the birth of the printing press to today, and describes the ethical compunction to engage in open scholarly and research practices as the "access principle," which he justifies thusly: "the commitment to the value and quality of research carries with it a responsibility to extend the circulation of such work as far as possible and ideally to all who are interested in it and . . . might profit by it" (p. xii). The open access movement itself is much larger than open education in that it involves radical transparency regarding the lingua franca of the digital age, data, but theoretically may well tie into similar issue of access and power. This will remain as a larger part of this study's exploration of the liberatory promise of Open Education, and the ethical dimension raised by Willinsky also will likely come to bear on the eventual theoretical research.

A key concern about Open Access is its effects on scholarship, especially established systems and metrics regarding publishing in HE, including, importantly, the calculation of a publication's impact factor (Hatzipanagos and Gregson, 2014) in matters related to employment and tenure. Expectations of Open Access publishing may have an uneven effect on newer authors or those in developing countries, who rely more heavily on impact factor to gain a foothold in the academic publishing system, and may, in fact, result in exploitation by hosting institutions. While there is certainly a need for updated metrics that don't effectively punish authors who choose to publish in open access journals rather than those that may have a higher impact factor - and are also isolated by paywalls - there is also a need to account for emerging scholars' generational affinity for open content models, owing to their status as digital natives who have previously enjoyed less fettered access to Internet-based content (Harrison, 2009).

A practical by-product of Open Access publishing is that it helps to propagate a culture of open scholarship through the example it sets to emerging researchers, including

junior faculty and graduate students (Harrison, 2009). Open scholarship is proffered as a viable practice both for scholars in the hard sciences - who can also share information through systems of open data (Stuart, 2014) - and in the humanities, where intellectual property concerns are seen to carry more weight than in the hard sciences, and where a more individualistic model of research and publishing has long held sway (Fisher, 2006). Veletsianos and Kimmons (2012) broadly define open scholarship as "teaching and research practices that espouse openness" (p. 167). The practices that they ascribe to open scholarship include publishing and sharing data in open publications and repositories, maintaining a "digital presence" (p. 168) through various web outlets and social networks, and - most germane to the present discussion - practicing open pedagogy by contributing and using OER. While the purpose of Veletsianos and Kimmons' paper is to delineate the landscape of open scholarship and the attendant challenges, they also raise a set of interesting critical questions that remain to be answered and which might also help to frame a critical account of open education:

> How does the corporatization of distance learning, as seen in the recent commodification of MOOCs, affect the ideals of democratization, equality, and justice that lie at the heart of the open education? How must existing academic systems change and adapt to incorporate open scholarship and open learning practices? How might we problematize the optimistic embrace of technology as a panacea for the current slate of problems faced by traditional educational systems? How can we best approach the unique problems introduced by open scholarly and educational practices, especially those which raise issues regarding power, fairness, and equity (pp. 175-181)?

Veletsianos and Kimmons conclude their review of challenges and assumptions facing open scholarship by stating the need for future research to address issues such as these using both empirical and theoretical approaches (p. 181). As we have seen thus far in this review of the current literature, there has been far more work on the former than the

latter, and this helps to justify the need for the theoretical method this study seeks to employ.

CONCLUSION

The research thus considered shows us that despite little agreement to one central definition of Open Education, there exists a common frame of reference for the movement as whole. By paying attention to the roots of "openness" in open-source philosophy, a more radical conception of Open Education emerges that precludes corporatization. Various open typologies have been researched and discussed, and the aggregation of these typologies helps to color our understanding of the expansive potential of the Open Education Movement. Important concerns remain about access and usage, vis a vis the existence, and possible amplification, of the digital divide as a factor in open learning, and more work is needed to fully engage the issue of the digital divide, heretofore considered as a factor of broader Internet access and use, in the context of open learning. The discourse of openness in education is varied, to be sure, but marked by an important absence of theoretical framing. Some studies do apply theory as part of their research frameworks, but far too few adopt anything like a critical perspective on the movement or its possible development. While there have been a few select critical pieces, these often deal with the function of openness within the field of education only and most fall just short of specifically implicating the movement in larger discourses of power, social justice, or equity. When the potential of Open Education is assessed, it is usually in a vague, pragmatic, or uncritical sense, and no one speaks explicitly to the liberatory possibilities and limits of the OEM, broadly considered. In the context of institutionalized higher education, there is great promise to be found in the ability of Open Education to re-energize moribund academic structures, but there is far too little

attention paid to the application of corollary principles outside of traditional educational systems, and of the possibilities thus afforded. Open scholarship paves the way to a more critical examination of the very structures that currently house our educational projects, and worthwhile questions have been raised about how Open Education is affected by its discursive and institutional location. These types of questions inform the current research, the theoretical framework and methodology of which I shall now describe.

Chapter 3: Theoretical Framework and Methodology

The proposed theoretical and textual research project will be an examination of Open Education in the context of contemporary neoliberal incursions upon public education. The pervasive and deleterious effects of neoliberal hyper-capitalism infringe upon prevailing progressive notions of an educational commons, and Open Education is posited as a possible site of resistance. To the extent that neoliberalism has become a hegemonic mode of discourse (Harvey, 2005a) whose pervasiveness has led to an acceptance of its tenets as endemic to a contemporary understanding of multiple modes of human interaction, from economics and politics to education, this work will be grounded in a critique of neoliberalism as an anti-humanist ideology. Importantly, the locus of the project will be deschooled, in that it will be undertaken outside of traditional educational institutions. Because Open Education will be considered on its own merits, rather than as a support system for traditional modes of schooling, a key point of consideration is that OE not contribute to the hollowing out (Klein, 2007) of public education, but rather serve as a meaningful counter to the commercialization, privatization, and de-regulation inherent in corporate school reform models (Sloan, 2008), as well as a rejoinder to the ideological subversion of educational discourse currently underway as part of the neoliberal restructuring of public curriculum and pedagogy. Specifically, the research questions that this study shall attempt to answer are as follow:

- What are the possibilities and limits of contemporary openness in online education?

- To what extent does the promulgation of openness in online education represent a rupture with prevailing discourses and practices of neoliberalism, and to what extent does it represent a continuation of these discourses and practices?

In order to answer these questions, I shall use the following framework to guide a theoretical and textual analysis of purposefully selected open artifact cases, as detailed in the ensuing methodology.

THEORETICAL FRAMEWORK

In this section, I will explicate the critical animus of the present study, namely the ongoing neoliberal attack on public education, as well as the deschooled context which allows Open Education (OE) to be considered as a possible site of resistance - at least to the extent that OE does not aid and abet the neoliberal project. An introductory account of neoliberalism and its concomitant functions of capitalistic enclosure will be considered both broadly and specifically in the sphere of education. This movement serves to contextualize the disruptive intent of deschooling as it is applied to a project of open online learning. In this way, a contemporary understanding of theoretical inquiry is employed which does not bluntly bifurcate critical and postmodern approaches, and which helps to support the use of the rhizome and the common as theoretical constructs that are simultaneously descriptive and prescriptive in the context of Open Education.

Neoliberalism, Enclosure, And Education

It will not be sufficient to merely critique neoliberalism as an ideological apparatus; rather, it is the totalizing effect of this particular ideology, which subsumes all available resources - of the state, its people, and their lifeworlds - to the mindless accumulation of profit, that necessitates a direct account of how this accretion occurs across institutions through the process identified as capitalistic enclosure. To the extent

that capital does not just relate to power, but is itself a mode of power (Nitzan & Bichler, 2009), neoliberalism represents a particularly malevolent strain of political and practical appropriation. Thus, it will be important to trace the role of power, in the guise of capital, as it manifests in various neoliberal attacks on public education (Ambrosio, 2013; De Lissovoy, Saltman, and Means, 2015). This movement is needed to help identify the extent to which OE could be misappropriated to serve the needs of capital and hence the broader neoliberal project of enclosure through privatization. To help establish neoliberalism as a critical point of reference for the current project, some introduction is in order.

Neoliberalism and Capitalist Enclosure

Neoliberalism is a complex and storied ideology with roots as a reactionary movement in response to both Keynesian market planning and, somewhat later, New Deal economic interventions in the United States (Jones, 2012). Jones lists three distinct phases in the development of contemporary neoliberalism: the first was represented by the assemblage, in the 1930s and 1940s, of mostly European philosophers and economists who desired to reinvigorate liberal market-based thinking to help counter the opposing waves of collectivism and totalitarianism that swept Europe in the forms of communism and fascism, respectively. It was during the second phase, which lasted from roughly 1950 to the rise of Reagan and Thatcher in 1980, that the movement congealed around the so-called Chicago School and began to readily adopt the term "neoliberal" to help separate their work from mere laissez-faire or classical liberal economic ideas. During both of these two initial phases, neoliberalism was largely an intellectual movement with little obvious political power, although the zeal of men like George Stigler and Milton Friedman helped to forge a critical mass of evangelical fervor that took the ideas of the

movement's forebears, such as Hayek and Popper, and built them into a powerful reaction against what they viewed as a collectively-biased mainstream discourse writ large in interventionist programs such as Johnson's New Deal. From Jones' perspective, it was in the movement's third phase, post-1980 that this critical mass metastasized into an active incursion into governmental policy designed to shape trade, development, and national investment in the "protection" of markets.

It is from the perspective of contemporary neoliberal hegemony that Harvey (2005) recounts the deleterious effects of the movement's ascendency to full-fledged global ideology. Unlike Jones (2012), whose workmanlike prose recounts the historical neoliberalism largely on its own terms, Harvey does not even try to conceal his contempt for a movement that represents, "the financialization of everything" (p.33), including the apparatus of state, economy, and even daily living. Jones describes neoliberalism's move into subjectivity in terms of its application of moral principles to explain economic status, but Harvey extends the analysis into the realm of "common-sense" and inevitability, most famously personified in Thatcher's infamous dictum that "there is. . . no alternative" (Harvey, 2005, p. 40). Harvey also extends his analysis more globally than Jones' Transatlantic focus on the second historical phase of the movement and cites the American business-backed coup to overthrow democratically-elected President Allende in Chile in 1973 as the turning point in the global metastasis of neoliberalism into a transnational phenomenon.

It is with an abiding awareness of the hegemony at play in neoliberal capitalism - which has roots in the complex drive inherent in capitalist fetishism, commodification, and desire (Dean, 2013) - that Harvey (2005) describes neoliberalism as:

> a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills

> within an institutional framework characterized by strong private property rights, free markets, and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices (p.2).

The danger therein is that when powerful private and corporate interests rely upon the state to "protect" their markets and capital, they themselves intervene in their own self-interest rather than out of any sense of the common good. In an era of multinational corporations whose annual profits dwarf the GDPs of many developing countries, these same corporations effectively displace state power in the name of market ideology. As Brenner (2004) notes, "We are witnessing . . . a wide-ranging recalibration of scalar hierarchies and interscalar relations throughout the state apparatus as a whole, at once on supranational, national, regional, and urban scales" (pp. 3-4). As shall be seen, the implications for schools, which have long relied upon urban and regional guidance to be responsive to the needs of their charges, are devastating.

Beyond such real impacts at regional scale, the implications of this movement away from local participatory self-rule, or at least nominally representative government, toward what Wendy Brown (2005) calls, "governmentality," or the subjectivization and administration of government functions by distant and disinterested - in common well-being, anyway - quasi-state corporate entities, are even more devastating for the form-of-government-formerly-known-as-democracy. In Brown's (2010) estimation, democracy has become an "empty signifier," devoid of any of the substance once attributed to it in the popular imagination. To the extent that democracy ever had any meaning - she argues that such meaning may have always been illusory in light of the historically exclusionary and ill-defined nature of democratic rule - that meaning has been elided by the devolution of democratic ideals to the status of handmaiden to corporate and neoliberal imperatives. It's not just that the state controls markets, but that the market is itself "the organizing and

regulative principle of the state and society" (Brown, 2005, p. 41). The pernicious obfuscation manifested by capitalist ideology is expressed by De Angelis (2007) thusly:

> In reality however, all market decisions are an expression of the market value system. To the extent that we are embedded in this value system, to the extent that we act within its codified language and parameters, we are like a fish that cannot see the sea it is swimming in. In order to see the value system we are operating with, we must step outside the parameters given by the market, and refuse it as given (p.25).

De Angelis posits that stepping outside of the system is a necessary step to questioning its portrayal as absolute. Likewise, part of opening up education is taking the humanistic activity of learning and bringing it outside of the sea, so that the larger ocean of possibilities can be seen. In working to generate alternatives to the system in which we are currently enmeshed, we must answer the question of how we unbind ourselves from the value practices of capital, and encourage practices that are autonomous and independent of the market value system (De Angelis, 2007).

Much as neoliberalism has rendered itself as the only economic reality, our institutions of education have been allowed to portray themselves as the only meaningful channel to learning at scale. The deep infiltration of our presumably hallowed halls by profiteering interlopers through processes such as enclosure and privatization has perhaps laid bare the extent to which the institution itself might never have been our only alternative. To the extent that capitalism, in its late-stage neoliberal expression, has been rendered an empty signifier, so too might have neoliberalism performed the same coup de grace on the once-revered institution of public education. However, like Brown (2010), who ruefully asks that we question our mourning of the loss of a liberal democracy for its own sake, we might also ask if we are mourning what we think are when we lament the incursion of neoliberal ideology into a public education system that has long been exclusionary in key aspects. Without a meaningful alternative - ideally one that is

autonomous and divorced from the market value system, as De Angelis posits - this is a dangerous question to ask. However, that danger should not disallow the inquiry, provided that the threats are named and reckoned appropriately. Enclosure is one such threat that must be described and anticipated in the analysis to come.

De Lissovoy (2008) provides a cogent micro-history of the commons and enclosure in *Power, Crisis, and Education for Liberation: Rethinking Critical Pedagogy* which is worth excerpting here for the concision it brings to a complex process:

> As Marx describes, capitalism is founded on a grand theft beginning at the end of the fifteenth century, as landed proprietors broke free from the constraints of law and custom of the feudal era and sought to appropriate for themselves the property that had previously belonged to the state or directly to the people. In England, which constitutes the essential case study for this process, arable land that was farmed collectively by peasants was seized by renegade sectors of the nobility and converted to pasture. This is the archetypal case "enclosure," in which the communal land of the village ("the commons") was sealed off and made the private property of wealthy sheep farmers . . . the wealth of the land, plundered by the new entrepreneurs, became the original capital that allowed for the reorganization of production on a large and coordinated scale (pp. 82-83).

De Angelis (2007) considers enclosure the generative principal of the market, although he finds fault with an easy reading of the process described above, commonly known as the hypothesis of "primitive accumulation," and first described by Marx (1967) in *Capital*. According to De Angelis (2007), it is incorrect to label this process as "primitive," for the process itself is continuous and ongoing, and thus not "primitive" at all. Moreover, he finds this process to be part of capital's drive as it expands into virtually every part of humanity's lifeworld as part of a generative cycle that results in the engenderment of new forms of the commons in attempted resistance - forms of the commons that capital must then, in turn, endeavor to enclose.

Enclosure and Education

De Lissovoy, Means, and Saltman (2015) posit that, historically speaking, it is impossible to separate the notion of the commons from that of enclosure, for, as it is for De Angelis (2007), the two are inextricably linked in a reflexive cycle of co-creation through resistance and overcoming. Likewise, De Lissovoy, Means, and Saltman (2015) also find Marx's original notion of primitive accumulation limited, for capital constantly needs to replenish itself in the face of cycles of growth, exhaustion, crisis, and stagnation, even in its advanced stage. Thus, capital is always looking for new areas to enclose in order to sustain itself. In this search, it is perhaps inevitable that education has fallen prey to capital's rapacious hunger.

As part of its incursion into every available sphere of human activity, capital, especially in its contemporary neoliberal formation, has made significant inroads, through enclosure, into public education. Free and universal public education can be viewed as a classic form of the commons, for what is more freely gained than common knowledge, and what action is more natural to social animals like humans than that of instructing one another to accomplish useful ends? De Lissovoy, Means, and Saltman (2015) locate an early, if imperfect, educational incarnation of the commons in the common school movement championed by Horace Mann during the period 1837-1848. Specifically, they locate his advocacy of universal education in a desire to deliver "an antidote to the ills associated with capitalist modernization" (p. 23). Despite his apparent progressivism of purpose, however, Mann still acted the interests of industry, and as public schools took root in America during the late nineteenth and early twentieth centuries, a constant tension existed between the egalitarian ideals expounded by its proponents and the capitalistic, patriarchal, and often racist realities of the institutions themselves (De Lissovoy, Means, and Saltman, 2015; Blacker, 2013; Bowles and Gintis, 2011). This

tension will be further explicated during the research analysis, but for the purposes of the present framework, we shall take the common school movement at its word and examine how what was once common in American public schooling has been eroded in the neoliberal era.

In escalating and increasingly successful attempts to implement standardized curricula, instruction, and assessment, De Lissovoy (2008) locates the encroachment of business interests into the sphere of public education as a process of enclosure, in that the growing influence and profitability of corporations doing business in and with schools represent "further opportunities for the penetration of capital into the educational 'market'" (p. 86). As De Lissovoy notes, however, "perhaps the clearest expression of the capitalist logic of enclosure in contemporary schooling is the trend toward privatization." I had the unfortunate opportunity to live this particular trend, as I was a public school teacher in New Orleans during the onslaught of Hurricane Katrina. Like all of my former peers, I remember the day I was laid off and then the weeks and months that followed as I watched in horror while the entire teaching force was rendered expendable. The charters moved in, staffed by eager young transplants plucked from the ranks of Teach for America and recruited by glossy billboards scattered throughout the southeast. It was no coincidence that the new charters that opened featured virtually no unionized presence and far too little local control (Miron, 2008). Sadly, this was but the first wave of what would become a torrent of privatized schools in a New Orleans that closed the doors of its last traditional public schools nearly two years ago (Layton, 2014). Once unleashed, the flood of privatization overtook New Orleans in less than a decade.

The treatment of personnel - and arguably students - in New Orleans and at charter schools in general is indicative of the neoliberal phenomenon that Blacker (2013) refers to as "educational eliminationism," wherein large swaths of the population are

written off as "no longer exploitable and hence irrelevant to capital accumulation" (p. 12). The loss of local control occasioned by the influx of national and regional charters is not unique to New Orleans. As Pauline Lipman (2011) details in her account of the neoliberal urban policies that have decimated Chicago schools, the ceding of educational decision-making to unelected committees made up of business leaders, cozy politicians, and associated sycophants are a function of the brave new world of hyper-capitalist neoliberal urbanism. About the charter-school situation in her own city, Lipman writes:

> Whatever its progressive origins, the charter school strategy has been exploited and rearticulated to the interests of education entrepreneurs, venture philanthropists, investors, and corporate-style charter school chains. Charter schools have become the central vehicle to open up public education to the market, weaken teachers' unions, and eliminate whatever democratic control of public education there is (pp. 121-122).

It cannot be surprising, in light of the neoliberal movements traced thus far, to see corporations, in the person of the afore-mentioned business leaders, but also in the dual for-profit and not-for-profit operations of charter schools, taking the lead in this enclosure of public funds and service at play in the takeover over of urban education. After all, as Ball (2012) notes: education is big business, with a varied portfolio for profit that includes both vertical integration (in the form of business opportunities in markets that include curricula, pedagogy, assessment, support and administrative services, as well as markets within specific sectors, such as preschool, higher education, vocational education, and professional education) and horizontal integration (including professional, management, information, and business information services). What is novel in the recent history is an emergence of venture philanthropy as both a surrogate and extension of the neoliberal imperative.

We see this trend strengthening across the country, as documented by Hursh (2015), who notes, "Venture philanthropists aim to use philanthropy to design and

implement education policies reflecting their neoliberal political agenda of privatization, markets, efficiency, and accountability" ("Understanding the Rise of Neoliberal Policies," ¶ 43). This is to say nothing of the direct business benefits of someone like Bill Gates, the founder of Microsoft, using the power of his influential Gates Foundation to help steer adoption of Microsoft computers, tablets, peripherals, or software. Gates also stands as a cautionary tale for the advocacy of venture philanthropists into educational policy. He famously advocated for schools to implement "stack ranking" of teachers, much like he did when CEO of Microsoft. This harmful and degrading practice is now commonplace in schools around the country seeking to emulate "sound business practices" (Strauss, 2013). What gets left out of the story is that Microsoft itself abandoned stack ranking in November, 2013, owing to the damage it did to employee morale and performance (Ovide & Feintzeig, 2013). Unfortunately, schools have much less maneuverability than a corporate CEO, and most don't seem to have gotten the memo.

Venture philanthropy plays a role in Open Education, as well, and will prove a rich point of analysis regarding whether or not OE represents a continuation or rupture of prevailing neoliberal practices, but for now let us turn to two other cautionary tales taken from critical analyses of neoliberal educational incursion, but to be applied to Open Education. The first comes from Jodi Dean (2009), who cautions against the fetishization of technology and warns against the tendency to passively participate in networked reality instead of actually doing the hard work of physical resistance in the face of oppression. The second comes from Douglas Kellner (2013) who has written extensively on the spectacle of media as an agent of diffusion in mass communication. Both of these charges could be levied at Open Education, as it is dependent upon technology in the iteration under consideration, and as an object of mass media, could either be an agent of distraction or potentially lost amidst the torrent of competing data merely consumed each

day on Internet networks. While any attempt to fully rebut these possible critiques of Open Education would be unfair in this introductory space, as the brief representations given above should prove to be straw men by virtue of their elision, such vulnerabilities will be engaged in the final analysis. Suffice to say that Open Education is presented as an active and participatory movement, and that a function of the limited scope of the movement's composition (to wit, the limitations imposed by the condition of true openness) serves as a first-level filter against possible spectacular orientation. Here, these insights are presented as a model of what the critical literature on neoliberalism can tell us about the limits of Open Education to the extent it is bounded by neoliberal ideology.

Neoliberalism and Curriculum

Critical educational scholars such as Giroux (1981) and Apple (2004) have long recognized that curriculum is closely connected to the social, cultural, and political contexts of its both its creation and implementation. In this way, the neoliberal project, in the form of corporate school reform, has shaped nearly every aspect of the contemporary educational reform movement, broadly considered, to include curriculum, as well as both policy and practice (Saltman, 2014). The net effect of this incursion is that neoliberalism now informs the hidden curriculum (Jackson, 1968; Anyon, 1980; Apple, 2004) of public education in America.

Jackson's (1968) foundational account of the hidden curriculum focuses on specific aspects of socialization in the classroom, such as those that force students to navigate crowds, praise, and power. Apple (2004) develops this concept from a neo-Marxist position and effectively describes how schools inscribe curricular knowledge at corresponding levels of status, in a socially reproductive manner similar to Anyon's (1980) description of the hidden curriculum as, "tacit preparation for relating to the

process of productions in a particular way" (pp. 89-90). In the case of neoliberalism, that "particular way" is grounded in a conception of students as human capital. In this twisted vision, "the world is intensely competitive economically, and students—as future workers—must be given the requisite skills and dispositions to compete efficiently and effectively" (Apple, 2007, p. 214). The efficient result of this competition is presumed to be fresh labor and productivity grist for the ever-economizing capitalist mill. As Connell (2013) states, "neoliberalism has a definitive view of education, understanding it as human capital formation. . . the business of forming the skills and attitudes needed by a productive workforce" (p. 104), with "productive" here understood as that which leads to market profit rather than any sort of personal or creative fulfillment on the part of the learner her- or himself.

An important contribution by critical pedagogues such as Giroux and Apple has been to re-assert the agency of the learner in resisting both tacit and hidden curricula, but the "no alternative" ideology implicit in neoliberal "reforms" reframes this agency into one of choice within a competitive capitalist market. In this limited view, in order to compete in the global free market, learners must gird themselves for competition by selecting advantageous private services rather than follow paths based on their own insight and curiosity. Knowledge is thus presented as a "consumable commodity that is efficiently or inefficiently delivered and consumed by students" (Saltman, 2012, p. 251). The logic of the market infuses the corporates school reform movement so that learners are presented as educational consumers and knowledge is reconfigured as mere product. The very application of corporate turnaround strategy and discourse to school reforms is itself a sign of the depth to which neoliberal reforms such as standardized testing, charter school investment, and the operational privatization of schooling are engaged in the marketization of education (Johnson, 2013).

As Levine and Au (2011) explain in their celebration of the work done by Rethinking Schools to challenge the corporatist reframing of education, the effects of neoliberal ideology on schooling are compounded by their dual nature: not only do the logic and mechanics of the market infuse reform movements, but an increased emphasis on hierarchal management of school curricula ensures that curricular content favors the interests of the businesses, venture philanthropists, think tanks, corporate sponsors, partisan foundations, politicians, and aligned media who stand behind their promotion. Thus, "corporate incursions into the curriculum" are "designed to indoctrinate children with a benign view of corporations" (Levine and Au, 2011, p. 81). In the new world of the educational marketplace, "courses are more vocationally oriented, pursue a more instrumentalist pedagogy, pitch tuition fees on a more lucrative basis, and are valued in terms of their output of knowledge-intensive human capital" (Gaffikan and Perry, 2009, p. 120). The result of this orientation is a very real narrowing of the curriculum to the subjects and values that best serve capitalist ideology. One of the primary contemporary vehicles for this narrowing of the curriculum is the movement toward centralized curricular standards and standardized testing. The drive to standardization enabled by legislation (or legislative fiat) such as Bush's No Child Left Behind (NCLB) and Obama's Race to the Top, which directly resulted in the national Common Core Standards, has resulted in curricular authority being taken away from local and state agencies and given instead to large educational corporations such as Pearson and McGraw-Hill (Tienken, 2013).

In addition, the simple profit motive held by the driving business interests which seek to sell their wares in more receptive private markets, Saltman (2014) identifies the extent to which "neoliberal ideology sees education not as a public good ideally serving a democratic society, but as a private good primarily useful for preparing workers and

consumers for the economy" (p. 241). Lim (2014) extends the neoliberal curricular incursion beyond content into the modular conception of knowledge as it currently exists in many programs designed to teach so-called thinking and problem-solving skills, in that the "likening of thinking to an assemblage of skills coheres with and partakes in the ideological frames of neoliberalism and its commodification of knowledge" (p. 66). By divorcing knowledge from context, and hence application and purpose, a modular approach lends itself to the disembodied approach favored by neoliberal attempts to crassly convert human intellectual capital to units of corporate worth. If we accept that logic that knowledge is mere product, then the abstract becomes a spec-sheet and the curriculum devolves to nothing more than a catalog. Lim's critique of modulation will be important to consider when analyzing the structure and composition of OE networks in the current research project. Open Education may only be considered successful if it represents a meaningful mode of resistance to the enclosure of the field of knowledge by those technocratic corporatists who harness curricula and schooling to drive perpetual profit in the name of self-interest and at the expense of the common good.

BEYOND ENCLOSURE: EDUCATION FOR THE COMMONS, DESCHOOLING, AND OPEN EDUCATION

Education for the Commons

Drawing from the ashes of the premillennial common school movement, which prefigured and anticipated our modern system of public education, De Lissovoy, Means, and Saltman (2015) ground their updated conception of common schooling as part of a collective resistance to neoliberal incursions upon a commonwealth of learning once enshrined as the guiding light of democratic public education. Of particular importance is their suggestion that:

> engagement with an educational Commons opens a different space for reimagining the public and public schooling out of the false choice between either market imperatives or state domination, and instead locates questions of educational value and organization within the principles of human equality and global commonality. . . We don't merely need to defend public schooling; we need to remake it. We believe that engagement with the theory and practice of the global commons provides a set of creative and ethical reference suitable to this task (p. vii).

It remains to see whether or not Open Education - in either its current popular forms or constructs yet to be realize - might serve as a tool for the remaking of public education, but a practical model for the formulation of Open Education as a collective mode of resistance to the ongoing enclosure of the public educational commons may be found in the grassroots efforts of citizens in cities like Chicago and New Orleans to counter the neoliberal displacement of local control over curricula, funding, and school operation (Buras, Ferrare, & Apple, 2013). Particularly in New Orleans, the communal nature of the defense deployed to resist enclosure may point to an offensive strategy for remaking schooling as an open system.

Buras (2013) uses the story of New Orleans' Martin Luther King Elementary as an exemplar for the roles of community, space, and organization in resisting corporate educational reform. As previously discussed, Hurricane Katrina provided a rare opportunity for educational disaster capitalism (Klein, 2007; Saltman, 2007) as moneyed interests converged upon New Orleans with both the purpose and means of privatizing the schools through "reform" elements such as charters, real estate redistribution, capital expenditure, and labor reorganization. Given the de facto segregated status of the most acutely affected regions, from New Orleans East to the Ninth Ward, corporate educational reform in New Orleans assumed a distinctly racialized form. As Buras (2013) notes, "Racialized teacher union-busting was only the beginning of the attempted process of accumulation by dispossession by the white power structure of Louisiana" (p. 27). A

process that began with the immediate displacement of an entire working population in favor of recruited imports ended with a school district composed entirely of charter schools (Dixson, Buras, & Jeffers, 2015). After surveying the challenges faced by their school and community, the leaders at King Elementary decided that the only way they could survive was by incorporating themselves into the charter system represented by the Recovery School District. Importantly, "King Elementary was the only state-approved charter submitted solely by a grassroots group; other charters were granted to schools collaborating with management organizations (Buras, 2013, p.28)."

In the case of Martin Luther King Elementary, a community school that honored its namesake's legacy in its focus on civil rights and civic engagement, the political power to determine which schools to charter gave the state and the Recovery School District immense influence in determining the fate of the community itself. As Johnson (2013) observed in her account of turnaround-inspired local school displacement in Austin, Texas, the loss of a neighborhood school, "is equivalent to experiencing a 'social' and 'civic death,' characterized by the loss of natality and history, a center for community development and advocacy, as well as the social and economic benefits of a nearby public school" (p. 246). In New Orleans, the dispossession (Harvey, cited in Buras, 2013) of public school spaces without regard to existing community, culture, history, or social networks represented a very real effort to enclose the public school commons through real estate transfer and attempted population relocation. Fortunately, the educational leaders and citizens of the Ninth Ward were successful in their navigation of the charter school system to local benefit. After recognizing they needed to charter to survive (Buras, 2013), King later became the first Katrina state takeover school to return to the locally-controlled Orleans Parish School Board from the corporatocratic confines of the Recovery School District (Dreilinger, 2015).

The fight for the survival and future of King Elementary was rooted in a larger local historical struggle for civil rights and educational equity, and as such, benefitted from traditions of organization and community-building (Buras, 2013). This being-for-a-cause is an important attribute of neoliberal resistance, for in order to combat the blunt shock therapy of corporate reform (Johnson, 2013), communities, however measured, must consider a choice between outright revolution and strategic subversion within an inconsistently corrupt system. Either way, imagination is required. In its communal grounding, grassroots activism is uniquely focused on the potential, rather than the limit, of existing social conditions as they pertain to the lived environment. The elements of community that drive grassroots movements - shared space, culture, history, and social networks - are also key aspects of the success of those movements. It remains to be uncovered how a decentered and networked movement such as Open Education can marshal analogous structures to effectively resist the encroachments of neoliberal reform.

A sturdy conceptual model of the potential, rather than the limit, of resistance within ongoing frameworks of corporatist incursion may be found in a scholar whose work is broadly critical of the neoliberal regime: Tyson Lewis. Lewis (2012) presents a model of exopedagogy that highlights the pirate as one who traffics within the common itself, in direct counterpoint to the neoliberal who seeks to enclose and profit from the enclosure of the common. Lewis cites the origin of "common things" in Roman law and posits that the "zone that exists before and above civil law is common to all living things and thus cannot be owned or controlled through human institutions or city-republics" (p. 846). Thus, he suggests two kinds of pirates:

> First there are entrepreneurial pirates. Such pirates utilize the state of exception that is the sea only to return goods to commodified circulation in alternative black markets. But there is a second kind of pirate who steals from the private and/or the public in order to maintain goods within natural law. This is a revolutionary

> pirate who sustains the commonwealth as a pure means rather than a means to another end (p. 847).

Unlike the entrepreneurial pirates who seek to profit from the enclosure of schools like King Elementary, the open educator is proposed as the second type: the revolutionary committed to commonwealth as its own telos.

While Lewis' vision of exopedagogy will inform the final analysis of this report, for now it is his example of one such pirate that sets the stage for the continuation of this framework, for the pirate whose virtue he extolls in contradistinction to the neoliberal trapper of the commonwealth is Ivan Illich, who according to Lewis, "opens pedagogy to a politics beyond politics and an education beyond education. This is the exceptional space of exopedagogy within the immaterial commonwealth of the multitude" (p. 859). In the next sections, Illich's work is discussed within the context of his most famous idea, that of deschooling. As a networked and decentered concept unmoored from traditional institutional and communal structures, Open Education is considered in this study as a thoroughly deschooled system, distant in time and space from brick-and-mortar schools, even if not necessarily immune to enclosure. This deschooled perspective helps to resolve the impasse noted by Pinar (2011) whereby reproduction theory reproduces itself out of an inability to acknowledge its own positionality within the very system it attempts to critique. By shifting the locus of critical theory out of the school entirely, Open Education may provide a venue for ideological critique to move beyond mere "ranting" (Pinar, 2011, p. 31) and into an activist space whereby the learner and the teacher are one and the same. Through open learning and reciprocal sharing via rhizomatic networks, subjectivity may yet be fully empowered in the immanent clearing revealed by the displacement of the very concept of being institutionally "educated."

Deschooling

In 1971, Ivan Illich published the landmark *Deschooling Society*. In the years immediately following, a bevy of thinkers attempted to grapple with the implications of Illich's work, in terms of both its promise for social revolution and its danger to established educational institutions. I would like to be clear here at the outset that this is not necessarily intended to primarily be a deschooling project in that I do not explicitly seek to prove or disprove the merits or demerits of Illich's conception. Rather, I find in Open Education an opportunity to revisit the radically different view of emancipatory learning established by Illich. Moreover, as I pointed out in the previous chapter, many - if not most - of the research projects conducted in the arena of Open Education have maintained an institutional affiliation with K-12 and/or Higher Education. Thus, in the context of the current chapter, this extended treatment of deschooling is meant to help establish the location of my research, namely outside of traditional modes of schooling.

To date, Illich has voiced the most comprehensively radical vision of an alternative to traditional conceptions of schooling, and I hypothesize that a deschooled perspective will enable a clearer reckoning of the potential possibilities engendered by a fully considered program of Open Education. By reviewing the basic contours of Illich's case for deschooling, as well as a representative sampling of the response from within the field of education, a range of convergences with Open Education emerges, as well as a need to critically interrogate the aims and means of deschooling to ensure that any affiliated project is not complicit in the ongoing neoliberal attack on public education. This is especially important in that contemporary research in Illich studies emphasizes that through his later work, which was sharply critical of all forms of institutionalization, Illich sought less to deschool society than he meant to disestablish schooling by limiting its privileged socioeconomic position (Olson 2010).

The International Journal of Illich Studies, founded in 2009, continues to update the ideas of Illich and emphasize the parallels that may be found between Ilich's work and contemporary educational movements such as critical pedagogy (Kahn, 2010), ecopedagogy (Buckland and Edmondson, 2011), and educational anarchism (Grego, 2013). Interestingly, *The International Journal of Illich Studies* is published as an open-access journal, so there seems to be a recognition that open-source philosophy is consistent with Illich's project. That being said, however, Open Education has yet to be treated explicitly within the specific field of Illich studies. In the analysis of research to come, further attention will be given to some of the implications of Illich's ideas, but for now, as a framing component, I will limit my discussion to relevant core ideas as explicated directly by Illich himself.

In his first book, Deschooling Society (1971), Illich established the direct style that helped to shape the polarizing critical reception to his work, then and now. He was unequivocal in his critique of the project at the heart of the modern educational system, to which he famously referred as “schooling," and which he decried as unfeasible for universal education, for to Illich the process of schooling is deleterious to the larger project of human education, and only by empowering humanity to freely partake of learning independent of institutionalized structures and dominations can the emancipatory promise of education ever be realized. To Illich, the danger of schools as institutionalized systems for education lay in a uniquely Illichean conception of the “hidden curriculum,” which reflected his belief that the net effect of a schooled curriculum was one of hegemonic enervation. He defined this particular version of the hidden curriculum thusly:

> [The hidden curriculum] conveys indelibly the message that only through schooling can an individual prepare himself for adulthood in society, that what is

> not taught in school is of little value, and that what is learned outside of school is not worth knowing. I call it the hidden curriculum of schooling because it constitutes the unalterable framework of the system, within which all changes in the curriculum are made (Illich, 1973, p. 10).

From a deschooled perspective, this hidden curriculum has resulted in a bifurcated understanding of the educational project in a large percentage of our population whereby school is where one goes to learn, and learning stops when the schoolhouse door shuts behind them at the end of the day. According to Illich (1973), schooling has so effectively embedded this hidden curriculum that its danger persists despite reform efforts that seem to address basic, but often superficial, deficiencies in the system itself.

It must be noted that while Illich's conception of the hidden curriculum shares the psychological character (Marsh, 1997) of Jackson's (1968) much-cited conception of the same, it differs in terms of the locus of critique. Illich avoids a functionalist or reproductionist position by more broadly locating the psychological imprinting of the hidden curriculum at the structural level of institutionalized schooling itself, rather than engaging the mechanics of the curriculum within that institution. Even accounts of hidden curriculum that are more "postmodern in flavor" (De Lissovoy, 2012, p. 469) still focus on domination and discipline as they occur within schools and affiliated institutionalized educational apparatus. By locating the hidden curriculum in the very act of schooling, as opposed to what happens *within* schools, Illich's conception is simultaneously more encompassing and disruptive.

As part of the movement to supersede what Illich considers the present and deficient institutionalized system, "[t]he current search for new educational funnels must be reversed into the search for their institutional inverse: educational webs which heighten the opportunity for each one to transform each moment of his living into one of learning, sharing, and caring" (Illich, 1971, p. 5). Illich's notion of educational webs

predates the current incarnation of the Open Education Movement, but the system by which he hopes people might utilize social networks to enable self-learning anticipates social learning via Open Education in some interesting ways to which I shall refer in the context of Peer-to-Peer (P2P) learning in the body of the present research.

To such an end, Illich (1971) posits the following criteria of an good educational system, that it should: be available to all, not just the young; allow willing learners to find capable and interested pedagogues who may support their learning and/or apprenticeship; and foster the establishment of learning networks that open subjects up across a web of possible knowledge, which in Illich's time meant newsprint, mail, television, and some emerging video and computer technology. The unanticipated explosion in technology since Illich's active period seems to require an update of the concept's emancipatory potential using current networks, which the present study will attempt. Illich himself used the term "network" as a synonym for "educational web" and said "[w]hat are needed are new networks, readily available to the public and designed to spread equal opportunity for learning and teaching" (p. 105). The present study suggests that in Illichian terms, Open Education provides the means for achieving educational webs as part of a deschooled alternative to the present hidden curriculum at work in traditional modes of schooling. This can be posited despite some of the misgivings within contemporary deschooled literature about the potential dangers inherent in technology.

In the context of current deschooled theory, both Pykett (2009) and Garland (2012) emphasize the importance of recognizing the participatory role to be played by learners themselves in deschooled settings, in terms of both danger and possibility. The danger lies in the cooption of personalized learning by the neoliberal project of personal accountability (Pykett, 2009), while the potential lies in the creation of an educational commune (Garland, 2012) characterized by reciprocal participation. In either cases, this

emphasis on learner subjectivity might be contrasted with the mere consumption of commoditized knowledge, which for advocates of deschooling (Esteva, Prakash, and Stuchal, 2008) serves to characterize contemporary educational corporatocracy (Sleeter, 2008). While there exists a strand of thought within the deschooling tradition, in both its classic (Illich, 1971) and contemporary (Esteva, Prakash, and Stuchal, 2008) veins, which is sharply critical of educational technology for its capacity to extend schooling into the enormity of human social life, such criticisms seem to apply more to the commodified version of for-profit online education than to the proposed open ecosystem which taps into a communized (Garland, 2012) vision of knowledge. The open nature of the OEM is precisely what might be seen to enable the learner's ability to recursively participate more fully in their own learning through reuse, revision, remixing and redistribution of educational content, and thus to excel mere consumption of proffered knowledge

In light of Illich's (2008) own movement from a critique of schooling to a sharper criticism of education itself as something that has been commoditized as part of an economy of scarcity, it may be necessary to reconceive Open Education as a more subject-centered process of *open learning*. What previous denouncements of educational technology from the deschooled perspective seem to have missed is the radical sense with which openness disrupts notions of schooling in the present sense: openness is a principle of proliferation and once learning proliferates, scarcity - that notion of restricting access to increase value which formed the basis of Illich's later critique of both schooling and education - ceases to exist.

Importantly, Schrag (1974) cautions against relying on the unproven merits of a deschooled society at the expense of extant systems of education: "Everything depends on assessing the relative advantages and evils of the school *as against proposed alternatives*. There is as little reason to think that other arrangements must be better or

even equally good as that they must be worse" (p. 410). To be sure, the stakes are sufficiently high that any program of research that utilizes a deschooled perspective demands a sufficiently critical component, lest well-established and long-suffering systems of public education risk further denigration at the hands of an insufficiently considered alternative. For this reason, I shall also ground my analysis in a theoretical space critically grounded in resistance to neoliberalism.

From the Common to the Rhizome

Thus far, the theoretical framework for the present study has focused on the critical stance required to gauge the potential of Open Education within an educational landscape under domination and attack by neoliberal ideology. The unique ability of capitalism and its sociopolitical handmaiden, neoliberalism, to morph, incorporate, and encapsulate - in short to enclose - positive means toward its negative end requires a multivariate conceptual approach that accounts for both the material and ideological dimensions of the ensuing enclosure. This is perhaps especially true when theorizing about an institution as socially central as education - perhaps even more so considering the foundational and reproductive possibilities inherent therein, which make it a tantalizing snare for a predatory adversary. In tracing the deleterious effects of the corporate school reform movement on the public educational commons through the processes of appropriation and enclosure, a parallel theme has emerged: these are the warning signs for the nascent Open Education Movement. Thus, the analysis will center on the signs of similar incursion into contemporary open structures, but this critical engagement will likely benefit from the countervailing presence of an active perspective to guide the identification of points of possible friction and rupture: the expression of a mode of resistance that might counter the hydra of neoliberal enclosure, or at the very

least support meaningful alternatives. In order to function effectively while under assault from multiple quarters, such resistance would benefit from a decentralized mode of organization, which would offer both benefits and risks for constituent nodes, herein understood as networked fields of discourse, curricula, pedagogy, and praxis. The wisdom of this suggestion may be debated later, but first the outlines of this decentered approach must be introduced.

The hope to be found in Open Education as a mode of resistance to, as opposed to appropriation by, the neoliberal project may be found in the deployment of Deleuze and Guattari's (1987) concept of the rhizome within the discursive field mapped by Hardt and Negri through their identification of the new form of sovereignty in Empire (2001) which provides the field of immanence upon which the critical mass of the Multitude (2004) may take form to help realize the promise of a global Commonwealth (2009. The rhizome is the organizing figure that ties Open Education to the work of the multitude in constituting learning as a true global common. Deleuze and Guattari (1987) describe their concept of the rhizome thusly:

> The rhizome as subterranean stem is absolutely different from roots and radicles. Bulbs and tubers are rhizomes. Plants with roots or radicles may be rhizomorphic in other respects altogether: the question is whether plant life in its specificity is not entirely rhizomatic. Even some animals are, in their pack form. Rats are rhizomes. Burrows are too, and all of their functions of shelter, supply, movement, evasion, and breakout. The rhizome itself assumes very diverse forms, from ramified surface extension in all directions to completion into bulbs and tubers. When rats swarm over each other. The rhizome includes the best and the worst: potato and couch grass, or the weed (pp. 6-7).

The multivariate form of the rhizome expressed here hints at its utility as a structure of resistance. It is decentered; multi-headed, yet headless; benign, yet dangerous. Importantly, the rhizome is immensely proliferative in a manner that excels more linear or centered modes of organization: each node of the rhizome is capable of functioning in

a manner independent from the other nodes, although still connected at the levels of structure and organization. For the purposes of this study, openness is considered as a condition of a rhizomatic mode of education. After examining the function of extant open artifacts, the extent to which OER are, or could become - by virtue of their relative openness - rhizomatic will be discussed as part of the power of the multitude to reconfigure its own production through engagement with the common vis a vis Open Education.

Open Education may serve to open up fascinating new sites of educational resistance, and in this case, a rhizomatic web-based structure could make it more difficult for the sleeping giant of Empire to crush early efforts. An example of this resistance to easy subsumption or destruction by empire may be found in peer-to-peer (P2P) file-sharing networks. When Napster's P2P network overturned the digital media universe, it did so by decentering the location of files to be shared. Rather than locating files on centralized servers which could be easily identified and shut down, Shawn Fanning and his team at Napster engineered code that allowed users to index and share files from their own computers over a wide area network (WAN). With no centralized storehouse to shut down, the network was virtually unstoppable, and even when authorities succeeded in using legal means and financial pressure to force Napster to shut down, P2P mutated into analogous services and eventually Bram Cohen's even more robust BitTorrent network (Knopper, 2009), which persists today. A real danger exists in the tendency for idyllic networks to degenerate into corporate versions of their former selves, as was the case with Napster (Carter and Rogers, 2014), but, interestingly, not for BitTorrent, which has thus far rebuffed corporate appropriation (Knopper, 2009).

P2P networks are rhizomatic in both structure and operation, and it is possible to imagine an educational network that might function in a similarly rhizomatic manner.

Unlike media networks, where the means of production is distant, and the emphasis is more on consumption that creation, the utopian promise of Open Education networks lies in the organizational and intellectual promise of the multitude in creating and maintaining the networked rhizome. A critical analysis of neoliberal imperatives (Harvey, 2005) will help to identify and analyze possible challenges to the rhizome, such as the intellectual property conventions of the proposed Trans-Pacific Partnership, or outright threats from state-level operators such as the NSA and CIA, whose expanding panopticon now includes virtually every American citizen, to say nothing of millions of non-Americans as well.

At the level of content, rather than structure, by tracing how power flows through efforts at educational "reform," corporatocratic enclosure of the intellectual commons, and concomitant sociopolitical structures, a possible curriculum may emerge that could form the pedagogical heart of a rhizomatic resistance. Of course, content is not nearly enough, and the work of Freire and Giroux, among others, might inform the critical pedagogical approach toward the dissemination of such a curriculum through open structures. Thus, an investigation into the discourse of neoliberal reform might provide clues as to the potential content of a revolutionary rhizomatic curriculum targeted not at the heart of the state, but at the heart of neoliberal power itself.

Deleuze and Guattari (1987) link the rhizome, with its decentered multiplicities, to smooth, as opposed to striated, space. Smooth space, which is likened to the nomadic desert and opposed to the striated space of the gridded city, may be thought of as the site of the unadulterated common wealth, disenclosed and accessible to all nomads. Likewise, striated space could be understood as the enclosed space of privatization and control contra the common wealth and common good. Building on this linkage between nomadic thought in Deleuze and Guattari and disenclosure, for the purposes of this study I

envision the rhizome as the operating principle of smooth space, and thus, of the *common* itself. Hardt and Negri lay out the groundwork by which the multitude reaches critical mass within the sphere of collective empire and, through love and revolution, displace capitalism by disenclosing the common, which they define as, "the common wealth of the material world. . . also and more significantly those results of social production that are necessary for social interaction and further production, such as knowledges, languages, codes, information, affects, and so forth" (2009, "Preface," para. 2). Through enclosure, privatization, and striation, this common wealth is made unavailable to the people, but the opening of education is a step toward disenclosing, communizing, and smoothing the intellectual common itself.

Conclusion

Enclosure of the educational commons is continually being carried out through the mechanics of corporate educational reform. As neoliberalism sublimates the state and its polity to the mindless and heartless drive for capital, accumulation, and power, the already-contested conception of schools as trusted repositories of the public interest is under assault. As we've discussed, there are many reasons for this, ranging from elemental profit motive to the instigation of schooling as an organ for ideological propaganda in the service of neoliberal hypercapitalism. In the common school movement and grassroots efforts at reclaiming community voice and control in schools can be found some of the seeds of resistance, including dedication to the common good and community engagement.

While it remains to be seen if the communal characteristics that mark common schools and local efforts to resist enclosure and domination, such as those to be found in neighborhoods like New Orleans' Ninth Ward, can be replicated in the networked space

of open online learning, there are other seminal structures unique to Open Education that may provide a point of departure, organization, defiance, and opposition. These structures are composed through multitudinous self-organization, and their rhizomatic composition lends itself to the task of opposing enclosure, both by virtue of sheer multiplicity and the strategic mechanisms of open source praxis. By examining contemporary models of open online learning outside of the bounds of traditional schooling, this rhizome can be isolated at selected nodes and interrogated as a paradigm of subjective resistance. This deschooled perspective carries with it a very real danger of contribution to the eliminationism that marks late-period capitalism, however, and the likelihood exists that the smooth space of openness merely provides a clearance for further enclosure. This possibility must be investigated before the theoretical potential of OE can be surmised.

METHODOLOGY

Employing a transformative research paradigm, the present study endeavors to critically examine multiple open educational sites to be treated as artifacts for analysis. This examination will then form the raw material for a discussion of the possibilities and limits of Open Education, although the theoretical component will co-occur with the formal analysis to the extent that specific cases will reveal opportunities to draw out insights which may be introduced within the analysis, but then fully integrated into a summative discussion of theoretical implications.

Research Paradigm

While I have provided sufficient detail about the theoretical concepts that will form the framework of my analysis, I would like to take this opportunity to describe how this framework manifests as a specific research paradigm in a slightly more traditional sense. Mertens (Mertens, 2010) describes four major paradigms in the research

community -- postpostivism, constructivism, transformative, and pragmatic -- and states that although, "the lines between them are not altogether clear in practice. . . to guide their thinking and practice, researchers should be able identify the worldview that most closely approximates their own" (p. 10). In examining the basic beliefs of each, one paradigm stands out as the most appropriate for the current research project: the transformative, which is described in terms of the basic beliefs with which it is associated:

> Axiology - Respect for cultural norms; beneficence is defined in terms of the promotion of human rights and increase in social justice; reciprocity. Ontology - Rejects cultural relativism; recognizes that various versions of reality are based on social positioning; conscious recognition of consequences of privileging versions of reality. Epistemology - Interactive link between researcher and participants; knowledge is socially and historically situated; need to address issues of power and trust. Methodology - Qualitative (dialogic), but quantitative and mixed methods can be used; contextual and historical factors are described, especially as they relate to oppression (Mertens, 2010, p.11).

Thus, I invoke the transformative paradigm as my epistemological orientation for analysis. In terms of the transformative axiology, the extent to which Open Education may be considered beneficial in terms of this research project depends entirely on its promotion of the human right to education and learning. The nature of the Open project in general is to increase equity and social justice through accessible educational resources, and it is part of the expectation of open proliferation that resources are redistributed, remixed, revised, and reused with as much reciprocity as possible, which is manifested in a very concrete manner in the Creative Commons Share-Alike (CC-SA) license.

Ontologically and epistemologically speaking, the guiding vision of Open Education is to empower local knowledge through the sharing of tools that enable individuals and collectives to be both origin and destination of learning, in a recursive

and proliferative manner. The idea that one person or institution has a monopoly on truth, information, or learning is anathema to openness. This is the essence of the "4 Rs": received knowledge can be reclaimed and repurposed, and then redistributed according to indigenous need, praxis, and culture. Proliferation of open resources is the operating principle at play. It's not enough to be free or accessible - knowledge and learning have to be open to remain at play in the larger field of discursive meaning. This is not to say that there is no grounding for truth or facticity, but instead that such epistemes are socially and culturally situated and expressed, and it is the role of the open pedagogue to position learning in such a way that it can be taken up and modified to meet the ground underneath. Open Education will cease to exist at the moment it ceases to proliferate, so it is of extreme importance that reception is never enough. Learners must become creators in an open system, and the tools of proliferation, though open source philosophy, must remain as violable as the units of meaning that are transmitted, absorbed, and reconfigured. Because these principles ground the vision of open education that anchor this study, it is only appropriate that they guide the study itself, especially the selection and deployment of theories girding eventual analysis.

Some aspects of this paradigm, specifically the link between researcher and participants and the dialogic aspect of methodology, do not apply to the current theoretical and textual project, but of the formal paradigms elaborated by research authorities such as Mertens and Merriam (2009) - who is much more stringent in paradigm construction and application - this notion is the one that is most applicable to the aforementioned postmodern and critical perspectives, and is thus consistent with the broad conception of critical theory previously outlined. Specifically, the present study elaborates a revolutionary vision of Open Education as a socially beneficial forum that honors access to learning as a basic human right; recognizes the situatedness of the forms

of knowledge and concomitant rhizomatic structures that make up the Open Educational project; and accounts for power, resistance, and agency on behalf of open learners. To that end, it will be an important aspect of the transformative paradigm thus employed that it speaks to the historical, social, political, economic, gendered, raced, and classed contexts of the selected facets of the OEM as part of the current methodology. A hybrid approach is projected, consistent with Merten's paradigmatic description, albeit with slightly different components: rather than mixed methods in the traditional sense of blending qualitative and quantitative methods, the present study will be a hybrid study combining theoretical and qualitative/textual analytical modes of inquiry.

Analytical Method

In his essay, "On the Idea of Educational Theory" in *The Handbook of Educational Theories*, Gert Biesta (Biesta, 2013) describes the important role that educational theory plays in grounding research within a field that has absorbed influences and ideas from virtually every field upon which it touches. For this reason, "[t]he particular construction of the field of educational research as the inter- or multidisciplinary study of education has remained relatively constant" (Biesta, 2013, p. 5), despite the many other changes that have occurred within the field itself. The multidisciplinary nature of educational research has the potential to lead to an amazing cross-fertilization of ideas and approaches, but it also poses a unique problem: Educational scholars must attempt to balance the integrity of their educational mission and its unique need for praxis with the multiplicity of possible theoretical approaches to that praxis, both from the standpoint of the broader field itself and in consideration of the knowledge being communicated. In educational research, theory needs to explain the

phenomena under consideration and also contribute to an understanding of the field itself, perhaps even guiding future research:

> Any attempt to explore the role of theory in educational research therefore not only needs to engage with the question how theories from a range of different disciplines pertain to the study of education - an angle to which we might refer as *the theory question in education* - but also needs to focus on what it means for particular theories to be used or applied within the context of educational research -- an angle to which we might refer as *the education question in theory and theorizing* (Biesta, 2013, p. 6).

In the present situation, Biesta's "education question in theory" informs the grounding of my theoretical questions in explicit textual analysis of specific artifacts. I previously discussed the hybrid nature of a contemporary notion of critical theory in education, one that spans the spectrum from theories typically construed as properly critical to those that are often considered postmodern. In order to describe this project's methodology along traditional lines, I deploy a research model that encompasses a similarly hybrid understanding, or at least possible application.

Broadly speaking, this theoretical and textual research project features a hybrid critical curriculum and cultural critique approach in which I analyze specific artifacts as forms of popular pedagogy and culture from a critical hermeneutical perspective that is sensitive to how power gets encoded in text and technology. Each artifact is evaluated for relative openness according to the level of open characteristic at play, as determined by licensure, either through copyright or specific level of Creative Commons license. The breadth of different levels of licensure across selected artifacts allows for interesting comparisons of their possibilities and limits relative to their relative degree of openness.

The key criteria for analysis are the research questions themselves, but consideration is also given to the epistemologies at play in given resources, their relative levels of openness, limitations vis-a-vis the digital divide (including issues of

usability/accessibility and equality), and corporatocratic investment. The summary information below is confirmed and elaborated through an examination of the sites themselves, a representative sampling of their course offerings utilizing grounded theory (focusing on relative levels of openness and the above-mentioned criteria), and an exploration of the foundational details of each, including financial support, institutional affiliation, and operative ideologies. In this way, the sites are treated as artifact cases and serve as the analytic corpus grounding a theoretical discussion of limit and possibility, both regarding the current state of Open Education as a movement of popular education and its undetermined future and perspective shape, as determined by extant formations, criteria, and expectations.

The analysis itself occurs through a thorough and searching engagement with the artifacts in question in an effort to answer my research questions and account for the implications of each as they intersect with the possibilities and limits of openness. Through registering as a full user of each site and cataloging the available courses within reason depending on their breadth and depth, I deploy a form of grounded theory to guide my cataloging efforts, allowing the content to dictate the structure and nature of the description, as the multivariate nature of many of these sites complicates a linear and proscribed approach. Likewise, I examine representative samples of available coursework, in multiple disciplines according to the emphasis of each, in order to analyze them according to the preceding criteria, inclusive of my research questions. I examine both primary and secondary documents to situate each artifact in terms of how it came to be and is allowed to persist. In all cases, the analysis occurs at both the level of the site itself and the component courses, resources, and learning objects in terms of content, structure, and organization.

It isn't enough to merely examine the constituent course components of each site, as they are presumed to be interdependent with the organizational and curricular narrative portrayed by that site's curators, be they non-profit organizations, engaged individuals, or seemingly beneficent corporations. The primary documents that make up the courses selected for closer examination are contextualized within the site's organizational mission and the secondary documents that comprise its history, vision, and milieu. For example, a peer-to-peer site cannot be evaluated by the individual contributions of peers in the educational network, for the sheer multiplicity of possible perspectives and motivations is too daunting for the theoretical scope of this work. Instead, those individual contributions are read as a gestalt whenever possible, and the holistic impression of constituent parts is interrogated in terms of their possible enclosure and/or appropriation by neoliberal ideological apparatus, both contemporary and in a conceivable future. In this way, I am able to determine if these sites, read as the sum of their complex parts, represent a break or a continuation of neoliberal discourse. To the extent that open educational practices disrupt neoliberalism, their potential and limit is assessed. If they do not disrupt neoliberal imperatives, then the promise of open education may be limited, the extent of which is described using a grounded theoretical approach.

An important aspect of my analysis is the identification of themes and problems that occur across artifacts or classes of artifacts. My specific method is to treat the artifacts in question as networked textual documents in the manner described by Hodder (1994) in "The Interpretation of Documents and Material Culture," working between different site artifacts, making comparisons and analogies between them. Specifically, Hodder describes a tripartite process:

> First, the interpreter has to identify the context within which things had similar meanings . . . Second, in conjunction with and inseparable from the identification

> of context is the recognition of similarities and differences . . . The third evaluation that has to be made by the interpreter is of the relevance of general or historical theories to the data at hand (p. 399).

While Hodder's recommendations for interpreting documents predate the full advent of the networked World Wide Web, it is his emphasis on the "contextualized interpretation" (p. 393) of such documents as material culture that makes this approach fundamental to the current research. The constituent courses that make up the networks under consideration are or could be seen as fairly benign in and of themselves; it is only by situating them within the networked context of their organization as part of a learning site that we gain insight into the promise and limit of the whole.

Also important in this contextualization is the need to consider the purpose and presentation of each *network* of textual documents. By this, it is meant that Hodder may be followed in his original focus on documentary theorization to the extent that the sites under consideration are read and analyzed as textual documents in and of themselves, but with the added complexity of their networked and interdependent nature as Internet artifacts. By understanding how these networks are created, situated, and deployed, their full potential may be more fully reckoned than if the constituent textual elements were interrogated as merely static documents. To that end, the present research consists of analyzing each site's stated purpose, institutional/state/corporate affiliations, level of openness throughout, funding, and component learning resources (to include coursework and specifically situated OER). This dual focus on content and context is at the heart of Hodder's groundbreaking approach to qualitative and theoretical research using documents, be they static as Hodder intended or networked as in the present case. This approach is consistent with the mode of website analysis suggested by St. Amant (2005) who asserts that "websites are, essentially, visual media" (p. 73) and promotes the use of prototype theory, whereby humans use prototype concepts to classify objects encountered

on the web, to understand site categorization across cultures. In the present circumstance, the prototype applied is one that does not necessarily exist but might in a case to be determined: the completely open, disenclosed, and deschooled site of learning. Degrees of openness, potential for enclosure, and level of institutionalization will be read documentarily, following Hodder, as points of relative divergence or convergence with this prototype.

To the extent that curriculum is an aspect of schooling in the present - and future - that is or could be implicated in my research, I locate myself as a "critical-exploratory theorizer" in that I seek to "understand deficiencies in past practices of curriculum development and to replace them with more adequate practices, particularly by considering curriculum in the broadest possible intellectual and social contexts" (Marsh, 2004, p. 201). In the present study, the past curricular practices I seek to engage relate specifically to Open Education in its contemporary iteration as an online phenomenon, and part of my theoretical task is to help establish openness as an ongoing curricular practice. Using the "4 Rs" (Wiley, 2009; Hilton, Wiley, Stein, & Johnson, 2010), artifacts are considered alongside an ideal class of openness, as well as the possibilities and limits of that class. As Hodder (1994) states, "Ultimately, material culture always has to be interpreted in relation to a situated context of productions, use, discard, and reuse" (p. 395). Comparative work between less-than-open resources and their open possibilities discloses the theoretical implications of a truly open system or class of resources. I will now describe the criteria for the selection of artifacts and overview the artifacts themselves.

Criteria and Description of Artifacts

Table 3.1 contains a brief overview of the artifacts to be studied over the course of the textual aspect of this research process. The artifacts were purposefully selected according to the following criteria: they are well-known, widely used, considered influential and/or representative, and have free-and/or-open characteristics or at least pretend to do so. The selected resources span the spectrum of K-12 through higher education to adult learners and represent both private and non-profit ventures, although completely for-profit entities hidden behind paywalls were eliminated from consideration for reasons both practical and philosophical.

Resource (Artifact)	Rationale
MIT OCW	OCW/OER; Seminal in the field; Now affiliated with EdX
EdX	Consortium of university OER; Predominantly MOOC-driven
OERu	Consortium of university OER; Higher degree of openness
P2PU	Unique approach; Networked Peer-to-Peer (P2P)
IOER	Highly searchable OER database; targeted to K-12
Curriki	Unique in its original focus on curriculum; Currently focused on K-16 OER
Khan Academy	Free, but not open, OER in the form of educational videos; High level of corporate support via foundations
MERLOT	Highly developed OER search engine; higher education focus
OER Commons	Public digital library of OER; targeted at educators
Wikiversity	Stablemate of Wikipedia with a learning-centered focus; open to all learners
WikiEducator	Wiki for collaboration, support, and guidance for OE and e-learning; targeted at educators
OER Foundation	Parent organization of OERu and WikiEducator; provides support and leadership for diverse OE initiatives
Open Education Consortium	Informational and organizational clearinghouse for OER; targeted at both teachers and students

Table 3.1: Research Artifacts and Summary Rationale for Study

Massachusetts Institute of Technology Open CourseWare (MIT OCW)

As previously mentioned, MIT's Open Courseware is often seen as the program that started it all. The pilot phase of the program went online in 2002. The guiding idea of the site's current iteration is "to publish all of our course materials online and make them widely available to everyone." MIT OCW is "a web-based publication of virtually all MIT course content. OCW is open and available to the world and is a permanent MIT activity" (MIT OCW, 2017, http://ocw.mit.edu/about/) The site currently boasts materials from 2,150 courses across the spectrum of disciplines and has hosted approximately 125,000,000 visitors. OCW prominently features translations into Chinese, Turkish, Spanish, Portuguese, Persian, and Korean, and includes a template release for further translations. The site's contents are published via a Creative Commons BY-NC-SA license, which means it requires attribution and allows non-commercial reuse with a similar level of licensure applied to all derivatives. OCW is affiliated with both EdX and the Open Education Consortium. Technically, Open CourseWare, of which MIT OCW is the prime example, is often considered OER (Ossiannilsson, Altinay, & Altinay, 2017), as it is not accessible as a live course, but structurally, it has much in common with the course structure of MOOCs.

EdX

EdX is a non-profit initiative founded by Harvard and MIT which now includes interactive classes and MOOCs from member institutions including the founders, UC-Berkeley, the University of Texas System, Australian National University, Boston University, Georgetown University, Sorbonne Universites, TU Delft, University of British Columbia, The University of Queensland, Berklee College of Music, Caltech, Columbia University, Cornell University, Dartmouth, Davidson, Ecole Polytechnique Federale De Lausanne, ETH Zurich, The Hong Kong University of Science and

Technology, IIT Bombay, Karolinska Institutet, Kyoto University, KU Leuven, McGill, Peking University, Rice, Seoul National University, Technische Universitat Munchen, Tsinghua University, Universite Catholique de Louvain, The University of Chicago, the University of Hong Kong, The University of Tokyo, University of Notre Dame, University of Toronto, University of Washington, and Wellesley (edX, 2017, https://www.edx.org/schools-partners). Despite the impressive list of contributors, course offerings are limited by each university; for example, the University of Texas System only offers twelve courses total. Site content is generally copyrighted per U.S. and international copyright laws (edX, 2017, https://www.edx.org/edx-terms-service) but some content is open, including, importantly, the source code for their learning platform, OPEN edX (edX, 2017, https://open.edx.org/about-open-edx).

OERu

OERu may both be thought of as a divergent cousin of EdX. It features more international contributors across multiple continents and regions, including Africa, Asia, Europe, the Middle East, North America, and Oceania (OERu, 2017, http://oeru.org/oeru-partners/). The process for completing courses seems similar to EdX, but a key difference lies in the general licensure of the site under a CC Attribution 3.0 license, which is the least restrictive, most permissible, and thus most "open" form of licensure. OERu offers coursework for free, but ties certain aspects of credentialization to fees, which suggests a theoretically rich dilemma about the role of credentialization in open learning and the value attributed to that role. While its own coursework selection is fairly limited at about twenty-four courses, OERu also offers links to tertiary courses offered by institutional partners.

Peer 2 Peer University (P2PU)

P2PU bills itself as a "grassroots open education project that organizes learning outside of institutional walls and gives learners recognition for their achievements" (P2PU, 2017, https://p2pu.org/en/pages/about/). They consider themselves 100% open and license themselves under the CC-BY-SA license which features a very high degree of openness and requires that what is redistributed, revised, remixed, or redistributed stays that way once it proliferates in the open ecosystem, although commercial reuse is allowed. Because it is community-driven, the course offerings are more uneven and requires specific sampling by type, to be determined using grounded theory. The possible application of a peer-to-peer system to help achieve Illich's (1971) notion of deschooled webs of learning will be explored using this site as an example.

Illinois Open Education Resources (IOER)

IOER is unique among the most popular OER sites in that it is targeted almost exclusively at a K-12 audience. According to the site's User's Guide:

> IOER provides you with one-click access to open, standards-aligned educational content. Use our tools to find, remix, and comment on resources for your personalized IOER learning library. Hosting more than 200,000 open and available learning resources, IOER provides specific, standards-aligned resources utilizing filters and engaging tools to refine and share quality, peer-reviewed educational collections and resources (IOER, 2017, https://ioer.ilsharedlearning.org/Help/Guide.aspx).

IOER holds great potential as a destination resource for its target audience, but as it is owned and operated by the Illinois State Board of Education, they maintain strict copyright throughout the site and importantly reserve the right to "make changes to the content offered through the Site at any time" and expressly forbid a whole host of open practices including even "reverse engineering" of any aspects of the content (IOER, 2017, http://ilsharedlearning.org/Pages/ISLE-Terms-of-Use.aspx). This level of restriction is as

unique as its location in the K-12 market, and the sites willingness to cross-market through third-party sites raises important questions about state and corporate interests represented in this site.

Curriki

Curriki (2017) has a special lineage as the only site intended for curriculum-specific open sharing. This was the promise put forth by former Curriki Executive Director, Barbara Kurshan (2007), in her foundational work on behalf of the site. As previously noted, at the time Kurshan was firm in her voiced dedication to open principles aligned with the Four Rs. This is quite a different reason for support than that voiced by Levy (2009), whose emphasis on the potential cost-savings inherent in using OER highlights the importance of considering the free rider issue in OER use and reuse. Curriki now operates under different leadership and its mission no longer reflects a dedication to curricular goals; instead it has become more of a clearinghouse for a wide variety of educational resources, some of which are more free than open. Nonetheless, it is worth considering as an example of openness applied to curriculum materials, however broadly considered, and also perhaps as a cautionary tale for other initiatives that seek to focus on curricula.

Khan Academy

Khan Academy (2017) is perhaps the most well-known and also the least open of the artifacts under consideration. Of particular interest is the curricular slant of Khan's offerings, as they lean heavily toward the hard sciences, with significantly less attention paid to the humanities or the social sciences. Befitting the site's genesis in math tutorials created by founder Salman Khan on YouTube for his cousin, math forms the largest segment of the site's course offerings, followed closely by science. Courses in the arts

and humanities are limited to titles in history, art history, and three music classes. Khan Academy also features courses in economics and finance, computing, and test preparation. Featuring massive support by foundation funding, Khan's instructive videos serve as a negative example to counterbalance the various degrees of openness and modality represented by the other artifacts in this study.

Multimedia Educational Resources for Learning and Online Teaching (MERLOT)

One of the most established sites in this study, MERLOT was founded in 1997 by the California State University system and now includes the University of Georgia System, Oklahoma State Regents for Higher Education, and the University of North Carolina System as sponsoring partners (MERLOT, 2017, http://info.merlot.org/merlothelp/index.htm#who_we_are.htm), although the CSU system is still the primary custodian of the site. As might be expected, MERLOT has a strong focus on higher education and is mainly focused on university educators seeking to create and share OER. It has a robust OER search engine and is cross-referenced by other sites in this study. Perhaps because MERLOT has so many state university system partners, it deploys a complex matrix of content licensed with various levels of rights reservation.

OER Commons

OER Commons (2017) was launched in 2007 by the Institute for the Study of Knowledge Management in Education (ISKME). As such, it serves as the digital public library of that organization, featuring a highly searchable database of OER, searchable by subject, education level, and standard. OER Commons also serves as a collaboration platform, featuring library and course building engines. By combining these two functions, OER Commons extends ISKME's OER mission to help " grow a sustainable culture of sharing and continuous improvement among educators at all levels" (OER

Commons, 2017, https://www.oercommons.org/about). OER Commons sees itself as part of the Open Education Movement and expresses a commitment to high-quality education as a human right.

Open Education Consortium (OEC)

This consortium is a non-profit "global network of educational institutions, individuals and organizations that support an approach to education based on openness, including collaboration, innovation and collective development and use of open educational materials" (Open Education Consortium, 2017, http://www.oeconsortium.org/about-oec/). Extensively funded by the William and Flora Hewlett Foundation, OEC is more of an informational and organizational clearinghouse than content provider or learning site. As such, it outsources its OER search engine to MERLOT, which helps to illustrate the interconnected nature of OER initiatives. While the content on the main site features the most permissive Creative Commons license, CC BY, they take great pains to note that the OCW and OER content to which they link are governed by the licenses enforced by the owners of that networked content.

OER Foundation

Founded through the work of educators at New Zealand's Otago Polytechnic, the OER foundation is an independent and not-for-profit organization that provides "leadership, international networking and support for educators and educational institutions to achieve **their** objectives through Open Education" [emphasis in the original text] (WikiEducator, 2017, http://wikieducator.org/OERF:Home). The OER Foundation leads multiple projects dedicated to the free and sustainable sharing of knowledge, including two sites included in this research project as separate objects of

study: OERu and WikiEducator. Understanding this foundation is important to tracing the mission and funding of those sites themselves.

WikiEducator

WikiEducator is one of two wikis in this study, and the only one that is focused exclusively at educators themselves. It was founded in 2006 as a wiki to support the collaborative development of free e-learning content under the auspices of the OER Foundation. WikiEducator considers itself a "global community resource" (WikiEducator, 2017, https://wikieducator.org/Main_Page) and includes support for specific user-defined open projects. This support includes both information about OER creation and access to a platform for collaboration.

Wikiversity

Although overshadowed by its big "sister" (Wikiversity, 2017, https://en.wikiversity.org/wiki/Wikiversity:Sister_projects) in the Wikimedia Foundation stable, Wikipedia, Wikiversity differs from that site in that it deploys its wiki approach in a structured curricular fashion that draws on original content, organization, and articulation even while it leverages the expansive material available through Wikipedia and other Wikimedia projects, such as Wikimedia Commons. Wikiversity is targeted at learners and educators at all levels, including professional training and informal learning, and is devoted to resources and projects for learning, as well as research. As a wiki, it employs a highly collaborative approach to the creation of OER and expansive learning communities.

Limitations

In the review of literature, I observed that much of the extant research on Open Education treats the subject within the context of higher education and that there was a

need to examine the movement from a different perspective. In the preceding theoretical framework, I explicitly located this particular project within a deschooled position. With both of these conditions in mind, the present study will examine Open Education from an extra-scholastic perspective, and its application to pure higher education settings will be limited. That being said, it is anticipated that many of the insights about the Open Education Movement may be applied to K-20 settings with the understanding that such application is not the express intent of this study. Hybrid implementations of Open Educational Resources may benefit more directly, but it is anticipated that those seeking to understand Open Education from a perspective specifically outside of K-20, and outside of traditional educational institutions more broadly considered, will benefit the most. Because of the nature of the resources under consideration, prospective learners in the context of this study are projected as young adults and adults, not necessarily those who require parental guidance or support to participate in free exploration and use of Internet resources.

It must be noted that this study is not intended to be a comprehensive study of the entire Open Educational ecosystem. Rather, the aforementioned resources represent a purposefully selected base from which to understand the current state of Open Education as a popular educational phenomenon with critical theoretical implications. In selecting the artifacts for study, an effort was made to choose diverse examples across the spectrum of available resources, but also to select those that had a reasonably visible profile and prospective audience. There may be other examples of open resources that excel the selected cases in various degrees of either impact, size, or penetration, but at the time of selection, these artifacts represented a fair balance of all three of those factors and thus the state of the art, broadly considered. In evaluating the potentials and limits of the OEM, size is relevant, as lesser-known or more esoteric offerings may be limited in their

interest to prospective learners. This particular limitation may require updating in future iterations of similar research.

Chapter 4: Research and Analysis

4.1: Missions and Purposes of Sites in the Present Study

To understand the possibilities and limits of prominent sites promoting an open approach to education, it is useful to analyze and situate the stated purposes and intended audiences of the entities under consideration in order to understand the motivating factors behind each and every site's work. Of course, the sites' authors may not necessarily be taken at their word, which necessitates the longer form of the current analysis, but understanding the central principles at play for each site helps to connect their missions and illustrate key distinctions that provide areas for critique, as well as opportunities for refinement of future efforts. The data for this analytical review comes from an examination of Mission, Vision, and Values statements, where available; "About" pages & linked documents; and introductory text on site Home pages. By examining their stated goals in detail, critical differences emerge which help to frame the possibilities and limits of Open Education in its current state. Common threads amongst the sample cases include a focus on expanding the reach of higher education, enabling access to Open Educational Resources (OER) in support of both K-12 schooling and higher education, and increasing learning opportunities to the widest possible audience. A summary of how each of the sites in this case set may be categorized by these common threads is presented

in Table 4.1.

Site	Grounding Focus	Dominant Methodology
MIT OCW	Higher Education	OER-OCW
EdX	Higher Education	MOOC
MERLOT	Higher Education	OER
OERu	Higher Education	MOOC
Curriki	K-12	OER
IOER	K-12	OER
Open Education Consortium	Broadly Inclusive	Network
OER Commons	Broadly Inclusive	OER
Wikiversity	Broadly Inclusive	Wiki
WikiEducator	K-20	Wiki
P2PU	Broadly Inclusive	Network
Khan Academy	Broadly Inclusive	MOOC

Table 4.1: Summary of Site Foci and Methodologies

OE and Higher Education: Extension of University Mission

A significant number of OE sites share a direct lineage with institutions of higher education. Massachusetts Institute of Technology (MIT) has its fingerprints all over the offerings in which it is engaged, in both its directly owned (MIT OCW) and collaborative (EdX) forums. According to a PDF linked to the "About" section of the MIT OCW main site, "[MIT] OpenCourseWare is based on a simple but revolutionary idea. That MIT can advance it's [sic] mission by sharing nearly all of it's [sic] course content online, for free." That mission is clearly stated in the PDF's conclusion: "to advance knowledge and educate students in service to the nation and the world" (MIT Open CourseWare, 2017, https://ocw.mit.edu/about/about-mit-opencourseware/MIT_OCW_V16.pdf). It is interesting here to note the close linkage between the founding higher education institution, MIT, and its open educational offering. MIT's mission becomes the mission of MIT OCW: while the mission includes the wider sentiment of "advanc[ing] knowledge,"

there still exists a privileging of students as a class, as opposed to the wider general public or commonwealth. Because of the strong higher education context, it is easier to read the usage of the term, "students" as tilted slightly toward those engaged in a higher education setting, as opposed to those who might lack the specific institutional and social capital that often accrues through such engagement. This bias may also be seen in the structure of MIT's Open CourseWare around traditional higher education course structures. Features that are typically common higher education, such as syllabi, lectures, solution sets, and exams are significant components of many of MIT OCW's offerings, and they are presented in a manner that rewards those who, as formal students, have already accommodated themselves to their usage, navigation, and application. Even the seemingly worthy desire to "educate [these] students in service to the nation and the world" (MIT Open CourseWare, 2017, https://ocw.mit.edu/about/about-mit-opencourseware/MIT_OCW_V16.pdf) is cause for concern in this era of what Harvey calls the "neoliberal state" (2005, p.19), in that state service is featured as a motivating factor from the outset, albeit in a conjunctive role.

A similar connection between higher education and site function is made more explicit in the mission of edX, which was founded by Harvard University and MIT as a collaborative venture in 2012 in order to offer, "high-quality courses from the world's best universities and institutions to learners everywhere." In the case of edX, the open-access site itself is proffered as an extension of the work of the supporting universities themselves in that the stated edX Mission is to, "Increase access to high-quality education for everyone, everywhere; [e]nhance teaching and learning on campus and online; and [a]dvance teaching and learning through research" (edX, 2017, https://www.edx.org/about-us). The higher education focus of edX is hardly surprising considering its foundation, as well as its sustaining membership of higher education

institutions, who are solely responsible for driving and delivering content, but this focus nonetheless poses critical and theoretical concerns for applications outside of higher education. Can the resources and courses provided through MIT OCW and edX be used by others outside of higher education? Certainly, but the types of courses and the main course methodologies in play are arguably more accessible and easier to navigate to those who have already accommodated themselves to higher education conventions such as syllabi, lectures, solution sets, and exams presented through a static linear navigation menu (see example in Figure 4.1). This higher education focus is even more pronounced in the case of Multimedia Educational Resource for Learning and Online Teaching (MERLOT), even as the methodology shifts to the provision of OER.

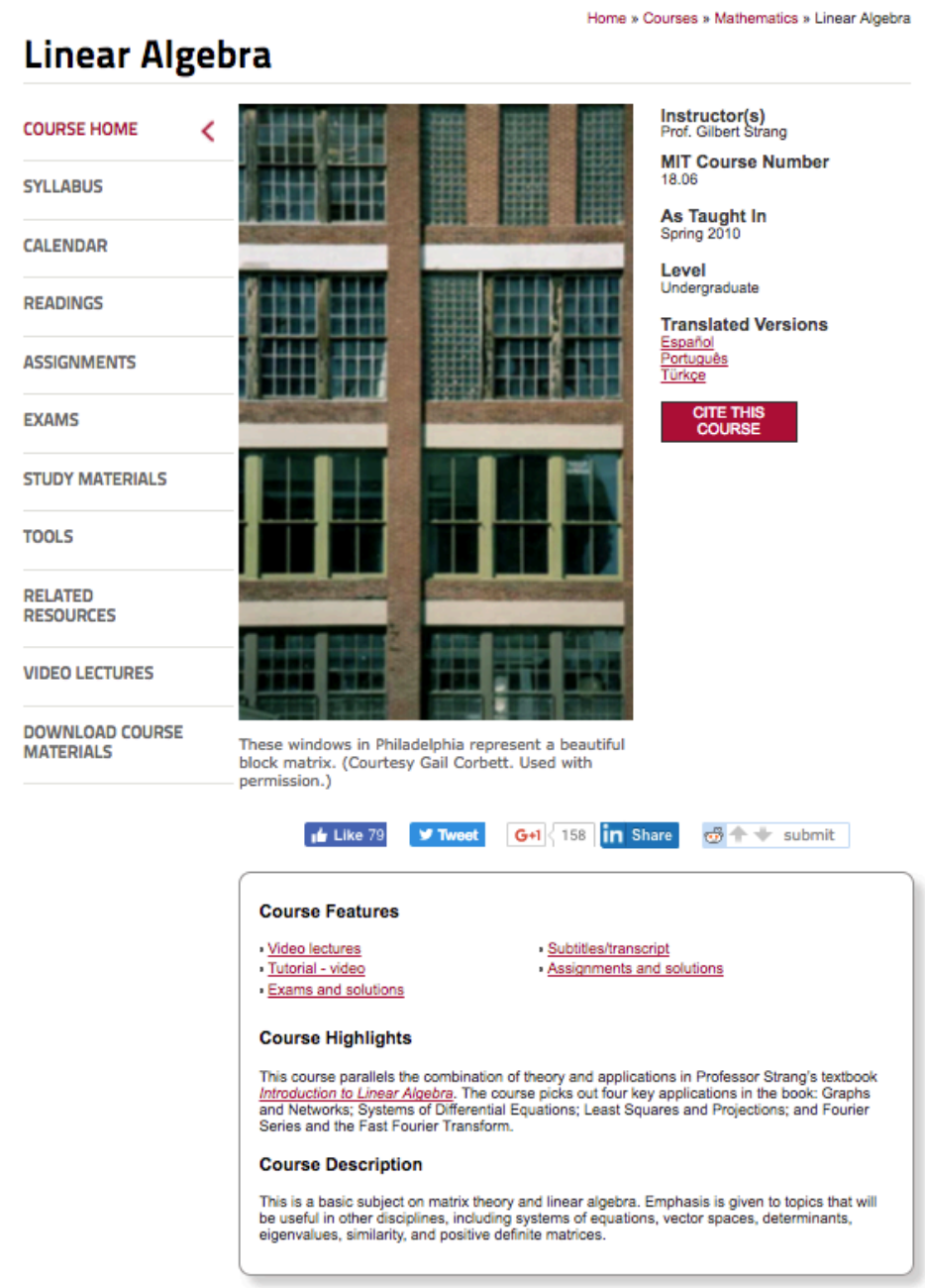

Figure 4.1: Sample Course Page: Linear Algebra on MIT OCW (2017, https://ocw.mit.edu/courses/mathematics/18-06-linear-algebra-spring-2010/). The virtual course structure is consistent with the genesis of this offering as a physical course at MIT. As of 6/25/17, this was the most visited course on MIT OCW.

MERLOT, founded in 1997, is a "community of staff, volunteers, and members who work together in various ways to provide users of OER (Open Educational Resource) teaching and learning materials with a wealth of services and functions that can enhance their instructional experience" (MERLOT, 2017, http://info.merlot.org/merlothelp/index.htm#who_we_are.htm). MERLOT is different from many of the other resources in this case set in that it forgoes attempts to formally structure and programatize its offerings or tie them to specific institutional goals such as credentialization. Instead, MERLOT is organized as a metacollection of OERs made available for anyone, but primarily targeting an educational audience. The expanse of OER made available by MERLOT is staggering and includes audio files, executable programs, Java applets, Shareable Content Object Reference Model (SCORM) packages, websites, Flash files, documents, spreadsheets, images, presentations, and videos. Interestingly, the Audience for these resources is limited to Grade School, Middle School, High School, College General Ed, College Lower Division, College Upper Division, Graduate School, and one non-educational group: the nebulous "Professional" (MERLOT, 2017, https://www.merlot.org/merlot/advSearchMaterials.htm). The intended K-20 audience groupings befit a collaborative effort spearheaded by the California State University Center for Distributed Learning (CSU-CDL) that has grown to encompass the entire CSU system and a large number of contributing higher education partners, including the University of Georgia System, Oklahoma State Regents for Higher Education, and the University of North Carolina System. MERLOT is very forthright about its own higher education focus, stating: "MERLOT is a free and open resource designed primarily for faculty and students of higher education" (MERLOT, 2017, http://info.merlot.org/merlothelp/index.htm#who_we_are.htm). As such, it is in effect a metaresource, making a vast swath of course materials available as OERs, but not

structured as anything recognizable as a course in and of itself in the manner employed by MOOCs - although it does feature search access to other open-access courses, such as those offered by MIT OCW. Importantly, MERLOT also serves as a central repository for OER and OER creation resources for other OE sites such as OERu, which helps to illustrate the interconnectedness of the open educational ecosystem under consideration.

OERu was established in 2011 by the OER Foundation (f. 2009; the OER Foundation also hosts WikiEducator - see below) with financial support from UNESCO. At its founding, OERu was promoted to help

> build a parallel learning universe, in order to widen access to more affordable education for learners excluded from the traditional tertiary education system. . . Today, the OERu network includes recognised universities, polytechnics and community colleges from five continents. We are collaborating to widen access to more affordable education through social inclusion (OERu, 2017, https://oeru.org/about-oeru/).

Importantly, while perhaps intended to meet the needs of those outside traditional educational systems, the access OERu seeks to provide is still grounded specifically in the higher education system itself:

> The OERu makes higher education accessible to everyone. Coordinated by the OER Foundation, an independent, not-for-profit organisation, the OERu network of institutions offers free online courses for students worldwide. The OERu partners also provide affordable ways for learners to gain academic credit towards qualifications from recognised institutions" (OERu, 2017, https://oeru.org/about-oeru/).

The courses available for credit from participating institutions ("Partners") vary along the lines of the Partners themselves, intermingling offerings across multiple open platforms, including Open University and WikiEducator. Interestingly, the OER Foundation also manages and administers the domain names for WikiEducator, which is much less centered on higher education (see below). In practice, then, WikiEducator functions alongside MERLOT as one of multiple sources for the OER that make up

OERu's offerings, with OERu itself serving as the connection between those OER and course credit administered by the OERu member organizations.

The complicated nature of intermingling the open-source, open-content approach exemplified by OER with the more stringent requirements for higher education course credit to be found in OERu is that it narrows the perspective audience and application of its OER to those actively engaged in higher education credentialization. For example, in its core values, OERu lists credentialization near the top after a stated focus on the broad category of "students": “OERu has the following core values: Free learning opportunities for all students worldwide, [a]ffordable assessment services towards credible credentials, [o]pen source (planning, processes, technology and learning materials), [s]trategic philanthropy,” and “[s]ustainable education futures” (OERu, 2017, https://oeru.org/about-oeru/). In this manner, the intended audience seems to be exclusively students of higher education, in either its brick-and-mortar or distance manifestations. This holds true, even if OERu takes pains to clarify its nonidentification as a degree-granting institution itself:

> The OERu is a network of recognised educational institutions. The OERu is not a formal teaching institution and does not confer degrees or qualifications. Instead, it works in partnership with recognised educational institutions who provide credit for OER learning on the pathway to gaining recognised qualifications from our partner institutes . . . Our network of recognised institutions is committed to creating pathways for OER learners to gain more affordable academic credit through the formal education system (OERu, 2017, https://oeru.org/organisation-faqs/).

Considering the dangers posed by the growing neoliberal infiltration of higher education (Busch, 2017; H. A. Giroux, 2014), this connection is troubling in its possible ramifications regarding learning outcomes, curricula, and pedagogy. Busch (2017) catalogues the neoliberal threat to higher education to include: shifting conceptions of education from a public to a private good, moving from public to private support,

viewing education primarily as a means of improving earning potential, increasing focus on testing and standardization of knowledge, and the creation of a bifurcated system whereby students of means maintain access to in-person instruction while those lacking socioeconomic capital are forced to navigate a sea of MOOCs, such as edX and OERu, and Open CourseWare. To the extent that OE functions as an extension of established educational institutions, it is prone to these same types of incursions by neoliberal ideology.

OE and Schooling: K-12 Focus

While any OE site or the networked contents thereof could conceivably be applied to any type schooling, there are two cases in the sample set that target K-12 audiences in particular: Curriki, which has, since its founding in 2004, changed its original purpose as a wiki for curriculum to relaunch as a hybrid marketplace for educational resources, open and otherwise, and IOER, which also promotes career and vocational learning.

As discussed previously, Curriki is a particularly interesting case in that it started out with a very tight focus on the "4 Rs of openness" as promulgated by original Executive Director, Barbara Kurshan (2007), but has since devolved to offer both "open" and merely "free" educational resources, many of which are tied to pay schemes for full access. One thing that hasn't changed, though, is the site's focus on educators, rather than learners – although there is much content accessible via Curriki that could be of direct use to learners, especially in a homeschool context. Specifically, Curriki's Resource Library provides searchable access to "thousands of thoroughly vetted online learning activities in all major K-12 subject areas in many formats" (Curriki, 2017, www.curriki.org/resources-curricula), which places it in the broad category of OER access, as opposed to MOOCs or other accreditation-linked methodologies. According to

the site's mission statement, “Curriki’s mission is to eliminate the Education Divide – the gap between those who have access to high-quality education and those who do not – in the U.S. and worldwide. It’s (sic) online community of educators, learners and committed education experts works together to build and share quality materials that benefit teachers, parents and students globally” (Curriki, 2017, http://www.curriki.org/about-curriki/). One danger in seeking to close the “educational divide” using OER is that there exists a very real possibility that what emerges is a bifurcated system whereby the “haves” have still more, in that they maintain access to brick-and-mortar institutions with in-person instruction and interaction (Busch, 2017), while the “have nots” are forced to make due with virtual coursework, distance instruction, and static OER.

Curriki seeks to avoid this bifurcation by working through the teachers in those brick-and-mortar schools, as well as other educational leaders and even homeschool parents (Curriki, 2017, http://www.curriki.org/about-curriki/): “Our Approach: Curriki works through teachers by supporting them with the tools they need to be maximally effective. Our innovative delivery model combines the power of great Open Educational Resources and technology to make a difference in student achievement at scale. Our approach to building the largest global community library of OER is pretty simple…share[:] Share what you learn. Share what you know. Share your content. Together, we can make education more equitable" (Curriki, 2017, http://www.curriki.org/about-curriki/). The sharing approach employed seems to be working for some, as Curriki boasts over 83,000 learning assets, more than 470,000 members, and access by almost twelve million users worldwide (Curriki, 2017, https://www.curriki.org/tag/curriki-community/).

Another site that blends free and open resources, albeit in a more pragmatic manner, is IOER. As befits its funding by an intergovernmental consortium funded

largely at the state level, the emphasis here seems to be more on just making resources available and less on any concerns about the intended or unintended consequences of how that content is licensed and provisioned. According to the explanatory white paper available from IOER's "About" page, "IOER provides open access and tools for curating, sharing and creating career and educational resources" (IOER, 2017, https://ioer.ilsharedlearning.org/ContentDocs/bc2cc184-41bf-464b-a363-11a554da4126/60/AboutIOERSept14_2015.pdf). As with Curriki, these resources are searchable by subject areas and Common Core standard threads, making this site a boon for time-strapped teachers in need of readily aligned content. In addition to the curricular materials accessible via "Learning Lists" and "Libraries," the types of "Resources" to which Curriki grants access is extensive and includes: courses, demonstrations, simulations, games, images, visuals, labs, learning tasks, curriculum maps, lesson plans, manipulatives, primary sources, reading and reference materials, rubrics, syllabi, units, and assessments of various stripes - all searchable by "Learning Standards" such as Common Core, Next Generation Science Standards, and Framework for 21st Century Learning (IOER, 2017, https://ioer.ilsharedlearning.org/Search). Like the aforementioned neoliberal incursion into Higher Education that gives cause to critically question higher education-affiliated sites, the enablement of standards-based teaching -- that handmaiden of the so-called reform movement -- provides a similar level of concern about the possibilities and limits of sites like Curriki and IOER, even as the practical utility of the site itself is acknowledged. In their enmeshment with ongoing structural crises engendered by neoliberal educational policies, the general classes outlined so far -- those directly affiliated with higher education and those targeted toward more of a K-12 audience -- both represent more a continuation than a rupture of neoliberal education policies.

OE: Expanding Learning Beyond Higher Education

Of the sample case set, a third group is affiliated with higher education and builds upon the resources of affiliated higher education institutions while explicitly expanding that reach to include a broader spate of learners who may or may not be formal students. The Open Education Consortium (OEC) is a "global network of educational institutions, individuals and organizations that support an approach to education based on openness, including collaboration, innovation and collective development and use of open educational materials. The Open Education Consortium is a non-profit, social benefit organization registered in the United States and operating worldwide" (OEC, 2017, http://www.oeconsortium.org/about-oec/). What makes this site different from the more purely higher education-affiliated sites described heretofore is that higher education is but one node of a larger network that also includes engaged individuals and organizations. Thus, an inclusive framework is established that supports the vision of the OEC: "Empowerment through education. We envision a world where everyone, everywhere has access to the high quality education and training they desire; where education is seen as an essential, shared, and collaborative social good . . . [Our values include]: Global focus, Openness, Equity, Collaboration, [and] Multiculturalism" (OEC, 2017, http://www.oeconsortium.org/about-oec/). In addition to links to open textbooks, there exists an "Open Education Information Center" that addresses the needs of "faculty," "students," "administrators," "researchers," and "policy makers" (OEC, 2017, http://www.oeconsortium.org/info-center/) alike, which provides a reasonable summary of the site's anticipated audiences Thus, OEC's more inclusive mission statement is belied by its reliance upon traditional HE frameworks, and especially upon a purely higher education-affiliated OER engine: MERLOT: "The Open Education Consortium, in collaboration with MERLOT, offers a search engine on OER (Open Educational

Resources). OER are openly licensed online educational materials that allow teachers and students to freely use, share, and modify. General search yields results from the integrated database of the Open Education Consortium and MERLOT" (OEC, 2017, http://www.oeconsortium.org/courses/). In this way, a vulnerability is exposed: By relying so heavily on MERLOT, that site's higher education-affiliated allegiances, such as its partnership of contributors and the associated focus on service as a metaresource specifically for faculty and students of higher education, could conceivably carry over to the OEC. This will be detailed at greater length when OEC's database is queried to parse out the level of reliance on MERLOT.

Unlike its explicitly educationally-oriented institutional constituents, the individuals and organizations that make up the OEC are left vague within the site's stated purpose, but based upon the previously mentioned "audience groups" serviced by OEC's Open Education Information Center (OEC, 2-17 http://www.oeconsortium.org/info-center/), these would likely include a typically schooled notion of educational community: educators as teachers in schools and learners as students those schools -- or affiliated tangentially via the system of accreditation. Notably, this distinction is left open, which support's OEC's mandate of inclusivity. A more restrictive notion of community -- if not as explicitly restrictive as the aforementioned class of formally affiliated higher education sites -- is that served as part of the mission of another OER site: OER Commons, which was founded in 2007. The stated aim of OER Commons is to:

> grow a sustainable culture of sharing and continuous improvement among educators at all levels . . . OER Commons offers a comprehensive infrastructure for curriculum experts and instructors at all levels to identify high-quality OER and collaborate around their adaptation, evaluation, and use to address the needs of teachers and learners. Diving into OER Commons is an exciting opportunity to

> collaborate with other educators and learners, at the forefront of a new educational era" (OER Commons, 2017, https://www.oercommons.org/about).

By positioning itself to serve the community of educators -- albeit educators as learners themselves -- OER Commons restricts itself in a way that limits its possibilities, if not necessarily its scalable reach, as educators are readily identifiable as force multipliers of influence by virtue of the expansive nature of their work. This force multiplication, as it were, is exponentially increased by virtue of OER Commons' deployment of crowdsourcing to assist in the creation and sharing of OER via its native authoring tools: Open Author, Lesson Builder, and Module Builder. In this way, the site's utility as an "extensive library" (OER Commons, 2017, https://www.oercommons.org/#) of OER is enriched by a network of contributing users.

The inclusivity and far-reaching potential of this focus on the community of educators, broadly considered, is captured in the manner which OER Commons aligns itself with the global OEM in its OER variant: "The worldwide OER movement is rooted in the human right to access high-quality education. The Open Education Movement is not just about cost savings and easy access to openly licensed content; it’s about participation and co-creation. Open Educational Resources (OER) offer opportunities for systemic change in teaching and learning content through engaging educators in new participatory processes and effective technologies for engaging with learning" (OER Commons, 2017, https://www.oercommons.org/about). This invitation to co-creation hints at the radical scalability of the crowdsourced approach at the heart of OE. Leveraging the collective community of users to become course creators allows for a larger pool of inclusion and more course offerings, which in turn makes the site more attractive to future potential users - both in and outside of the academy.

OE: Beyond Schooled Structures

The cases described so far primarily use two distinct forms of material organization: MOOCs, which mimic the structure of traditional higher-education coursework, and OER, which typically feature component resources that are primarily focused on the educators who will implement those resources, if still theoretically applicable to a wide variety of broadly educational purposes. There exists another set of cases that utilize broad and varied forms of crowdsourcing in order to create and share educational content to an audience beyond those schooled to understand and use MOOCs and OER, thus expanding the reach and scope of that content's usability. Perhaps the most recognizable form in this case set is that of the wiki.

Wiki descends from the Hawaiian word for "hurry" or "quickly," and the first wiki, named WikiWikiWeb, was created by Ward Cunningham in 1995 to increase the speed and ease with which programming code could be shared by its authors (Ebersbach, 2008; Hughes & Narayan, 2009). Ebersbach defines the wiki format thusly:

> A wiki is a web-based software that allows all viewers of a page to change the content by editing the page online in a browser. This makes wiki a simple and easy-to-use platform for work on texts and hypertexts. . . Many wikis also correspond to the legal definition of open, free software. Most are subject to the GNU General Public License (GPL), which, among other things, prohibits a program from being converted into "proprietary" software. In this way, copyright laws prevent a program from being claimed as private property by a legal person for commercial purposes. Furthermore, the free use, distribution and editing of the program is ensured (p. 12).

Perhaps the most well-known and successful application of wiki is Wikipedia, which is a top-ten most-visited Internet site containing more than 40 million volunteer-authored articles in approximately 300 languages. Since its creation in 2001, Wikipedia has grown into the "largest collection of free, collaborative knowledge in human history" ("Frequently Asked Questions: What is Wikipedia?," 2017). While interesting as a

repository of knowledge and as an exemplar of the potential power of wikis, Wikipedia is just one of several "sister projects" (Wikiversity, 2014, https://en.wikiversity.org/wiki/Wikiversity:Sister_projects) funded by the Wikimedia Foundation to harness the collaborative power of the wiki methodology. It is Wikipedia's explicitly educational sister project, Wikiversity, with which this analysis is concerned.

Wikiversity was launched at Wikimania, the Wikimedia Foundation's annual convention, in 2006 (Wikiversity, 2015, https://en.wikiversity.org/wiki/Wikiversity:History_of_Wikiversity) and continues to serve as a "project devoted to learning resources, learning projects, and research for use in all levels, types, and styles of education from pre-school to university, including professional training and informal learning . . . teachers, students, and researchers [are invited] to join . . . in creating open educational resources and collaborative learning communities" (Wikiversity, 2015, https://en.wikiversity.org/wiki/Wikiversity:Main_Page). The wiki format used by Wikiversity impacts the types of content on offer, in that it leads to a much more text-based presentation, as necessitated by the broadly accessible nature of wikis: not everyone has access to video or multimedia course authoring tools, but text is eminently shareable on the open Internet, so text-based entries and sets of entries organized into course sets form the basis of Wikiversity's offerings. Wikiversity can best be described as a deeper, if less comprehensive, version of its sister-site, Wikipedia, in that it allows for articles of the sort that characterize Wikipedia to be contextualized and organized as curricula.

While Wikiversity perpetuates a seemingly preferred focus on teachers and students in a traditionally schooled context, its broadening to include indeterminate researchers helps it to perpetuate the unrivalled crowdsourcing exemplified by Wikipedia. This expansion is codified in the wiki's stated goals:

> Wikiversity is a centre for the creation and use of free learning materials and activities. Its primary priorities and goals are to: Create and host a range of free-content, multilingual learning materials/resources, for all age groups and learner levels; Host learning and research projects and communities around existing and new materials . . . Wikiversity's mission is closely aligned with the Wikimedia Foundation's mission which 'is to empower and engage people around the world to collect and develop educational content under a free license or in the public domain, and to disseminate it effectively and globally'" (Wikiversity, 2015, https://en.wikiversity.org/wiki/Wikiversity:Mission).

The interconnectedness of Wikimedia Foundation's purposes across its various organs echoes the general interconnectedness to be found across the open ecosystem under consideration, as may also be seen in the wiki outgrowth of the OER Foundation, WikiEducator.

WikiEducator was founded in 2006 as an experimental wiki to explore the collaborative potential of developing eLearning using wikis (WikiEducator, 2016, https://wikieducator.org/WikiEducator:About). Where these two wiki-based approaches to establishing learning communities differ is in their connection to higher education. In the case of Wikiversity, the schooled connection is much more implicit in its intended audience, while in the case of WikiEducator, it is much more explicit by virtue of its connection, via the non-profit OER Foundation, to New Zealand's Otago Polytechnic. Even so, WikiEducator is posited as a "global community resource" (WikiEducator, 2016, https://wikieducator.org/Main_Page), which effectively trumps any perception of local control.

This sense of community is especially pronounced in wiki variants of open education, for such forums rely almost exclusively on community participation. For this reason, WikiEducator is very clear on the "Community Values" that guide its collaborative work: "diversity, freedom, innovation, transparency, equality, inclusivity, empowerment, human dignity, wellbeing and sustainability." Of particular note is the

emphasis on specifically global and humanistic values that are seemingly elided from the mission statements of the MOOC-based higher education cases discussed previously. Collaboration is the hallmark of wikis, and WikiEducator makes this point in its stated purpose: "The WikiEducator is an evolving community intended for the collaborative: planning of education projects linked with the development of free content, development of free content on Wikieducator for e-learning, work on building open education resources (OERs) on how to create OERs, [and] networking on funding proposals developed as free content" (WikiEducator, 2016, https://wikieducator.org/Main_Page). It is worth noting that the democratic approach and technical structure employed by wikis through their ease of access and sharing allows sites such as WikiEducator to specifically tool participants to create their own OERs, which greatly expands the exponential potential of the virtual educational communities thus engendered.

This focus on community is also seen in an open learning variant that is completely unique within this research set: Peer 2 Peer University (P2PU), which shall be seen to operate as a living and breathing example of the peer-matching networks envisioned by Illich in Deschooling Society (1971), in that it doesn't feature any unique content in and of itself, but simply functions to connect individuals and communities in collaborative study around various distance formats, to include any of the variants described heretofore. The site's organizers assert that their work is driven by three "core values":

> Peer learning: Underlying all our work is the understanding that learning is a social activity. We believe that everybody is an expert in something, that sharing and connecting is how we learn best, and that feedback is necessary in order to improve; Community: P2PU began as a community-centered project, which is reflected across our organization through our volunteer network and governance model. By involving learners and collaborators in all stages of the design and delivery of our work, we foster networks of learners and facilitators, and

> contribute to the crucial role that informal learning plays in local communities; Openness: Openness enables participation, replication, and accountability. We strive to use openly-licensed learning materials and always share our methodology and resources openly, so that as many people as possible can take leverage our work" (P2PU, 2017, https://www.p2pu.org/en/about/).

The explicit inclusion of openness serves to update Illich's notion of learning networks using readily-available learning materiel. Importantly, in comparison with the other sites that compose this research set, there are no stated targets of participants of schooled institutions, be they students, teachers, or even the broad category of researchers; instead, the focus is on "learners" and "facilitators." The aim of P2PU is to engage workaday people in topics and goals of their own choosing using the community itself as the vessel for greater understanding. This deschooled and networked approach points to the potential of OERs to be leveraged for both individual and community learning outside the bounds of traditional educational institutions.

A similar extrascholastic focus is seen in another unique case under consideration, that of the Khan Academy, which was started in 2005 by the founder, Sal Khan, as a way to help his cousins with their math homework using video lessons on YouTube. The method caught on, and now Sal Khan bolsters his tutorials via crowdsourcing from contributors across the globe (Khan Academy, 2017, https://www.khanacademy.org/about/the-team). One key distinction to be made about the Khan Academy is that it is not open in the sense employed by this study. Instead, it is merely free, and as shall be seen, the high level of philanthropic investment in this growing organization promises to allow it to remain that way: "Our mission is to provide a free, world-class education for anyone, anywhere... For free. For everyone. Forever. No ads, no subscriptions. We are a not-for-profit because we believe in a free, world-class education for anyone, anywhere. We rely on our community of thousands of volunteers and donors." (Khan Academy, 2017, https://www.khanacademy.org/about). While the

generous support of volunteers and donors helps Khan Academy content maintain a high level of access, the medium itself, namely inviolable self-contained videos and lessons, limit the free play of that content in configurations or adaptations outside of the technological walls of the Academy itself.

Conclusion: Form Follows Function

In the sample cases under consideration, examining the stated purposes of each site informs our understanding of the limits and possibilities of Open Education in the forms thus enumerated. Sites that are formally affiliated with specific institutions of higher education tend to target participants in higher education and use structures, such as MOOCs and OCW, which are familiar to those in higher education, which potentially limits their uptake by those who lack such familiarity. The broadest and most open methodology, OER, is employed by sites more loosely associated with HE, although not in a manner that necessarily promotes the interests of credentialization, as well as by sites that seek to serve a K-20 audience. Importantly, OER are also deployed by those sites that seek to appeal to the broadest audience of both learners and educators, regardless of association with schooling. The higher level of openness associated with OER seems to lend itself to application in sites like Wikis, which rely on participatory crowdsourcing for their networked existence. Sites such as P2PU and Khan Academy, which also seek to reach a wide audience, do so by employing specific methodologies that are easily consumable by their target audiences (networked community engagement and video-based teaching and learning, respectively). Thus, in terms of governing methodologies and site mission/purpose, form seems to follow function.

The following of function or purpose by form reflects the distance of each site from traditional schooling structures. Those aligned closely with higher education mirror

traditional collegiate course structures in the form of MOOCs, but MOOCs are also less clearly open, in that they may make use of less-than-open components. The less-than-open structure of MOOC-based sites befits their use to support regimes of credentialization in the form of their higher education partners.

OER, while being more radically open, make up a sufficiently broad category that invites usage by both those engaged in schooling and those that are not, although one might argue that the "R" in OER (resources) are especially useful to those who are in a position to employ such resources as part of teaching or learning. Once again, P2PU and Khan Academy are outliers in this figuration, as they use structures that are somewhat different from traditional MOOCs and OER. This reflects their positioning even further outside of the bounds of traditional schooling. Importantly and uniquely, P2PU does not provide a significant level of original content, but rather focuses on enabling peer-based instruction around third-party free and/or open learning assets and programs. Also uniquely amongst the case set, Khan serves as an example of the type of free learning site that may be accessed by anyone at any time, but which is not considered open. In the next section, openness will be considered as a factor in how each site is licensed for use.

4.2: Site Licensing

When discussing site licensing as a component of the case set, it is important to note that there are two possible aspects of each site wherein licensing is at play: the content of the site itself and that of courses that are networked or linked within the site under consideration. Because networking occurs across all sites currently under consideration - with the possible exception of MIT OCW, which features content drawn from the academic resources of a single parent institution and is thus less *externally* networked than the others - for the purposes of this study, the main platform for

examining this in detail is the site itself. Networked courses will be discussed as a general class of each site, for their rhizomatic manifestation and proliferation renders a granular exploration of individual course licensing outside the bounds of the present research. Table 4.2 below summarizes the governing licensing employed by the sites under consideration in this study, the particular implications of which will form the basis of my account in this section.

License Types	Sites
Creative Commons - Attribution (CC BY)	Open Education Consortium, OERu
Creative Commons - Attribution-Share-Alike (CC BY-SA)	OER Foundation, WikiEducator, Wikiversity, P2PU
Creative Commons - Attribution-Non-Commercial-Share-Alike (CC BY-NC-SA)	MIT OCW, OER Commons
Some Rights Reserved	MERLOT, Curriki
All Rights Reserved	EdX, IOER, Khan Academy

Table 4.2: Licensing Types by Sites Employed

License-Granting Entity

Most of the cases under consideration are published directly by a parent organization that is titular to the site itself (see figure 3). The notable exceptions are OERu, Wikiversity, and Illinois Open Educational Resources (IOER). In all three of these sites that administer their intellectual property rights on behalf of a third party, the third party in question functions as a sponsor whose interests are served by the function of the site itself. By identifying the interest of the third party/parties who administer(s) intellectual property, some a stark difference emerge which point to both the possibilities and the limits of Open Education, especially when considered against neoliberal economic practices. While both OERu and Wikversity are licensed by parent organizations dedicated to the promulgation of open educational principles, IOER is licensed by a pair of state agencies with their own specific interests.

OERu is "coordinated" by the OER Foundation (“OERu,” 2017), which is "an independent, not-for-profit organization that provides leadership, international networking and support for educators and educational institutions to achieve their objectives through Open Education" (“OERu,” 2017). The OER Foundation has a broader charter of support for educators, as seen in its other major offering, WikiEducator, and OERu functions as the more specifically learner-centered node of outreach, but otherwise there is no conflict between the missions of OERu and the OER Foundation.

The same thing can be said or Wikiversity, which is "hosted" by the Wikimedia Foundation, a "nonprofit charitable organization dedicated to encouraging the growth, development and distribution of free, multilingual, educational content, and to providing the full content of these wiki-based projects to the public free of charge" (Wikimedia Foundation, 2017). As discussed earlier, Wikiversity is just one of several "sister projects," alongside Wikipedia, Wikimedia Commons, Wikiquote, Wikispecies, Wikivoyage, MediaWiki, Wikibooks, Wiktionary, Wikinews, Wikisource, and Wikidata (Wikiversity, 2015, https://en.wikiversity.org/wiki/Wikiversity:Main_Page). As with OERu, the mission and function of Wikiversity is consistent with that of its parent organization and serves to more specifically promote learning. The consistency between parent organization and site licensing entity seen in every other case and these two exceptions manifests itself in a more tacit manner within IOER.

Illinois Open Education Resources (IOER) is sponsored by the Illinois Department of Commerce and the Illinois State Board of Education. Unique among the case set, this is the only instance under consideration whereby the site itself functions as a direct expansion of state-level governance. This case is fairly unique in this set because it targets K-12 and Adult Education - as does only Curriki, otherwise - with full attention

paid to the national standards supporting each of those broad groups at both the state and national levels (IOER, "About IOER," 2015, https://ioer.ilsharedlearning.org/ ContentDocs/bc2cc184-41bf-464b-a363-1a554da4126/60/AboutIOERSept14_2015.pdf). As such, IOER enables K-12 teachers to download and share content that is verifiably aligned to both the Illinois and Common Cores standards. While this might well be expected in a site affiliated with the Illinois State Board of Education, it points to the mechanism whereby supposedly, "open" educational resources are organized and made available to support a standardization movement that serves as a key point of leverage in the neoliberal attack on public education (Sloan, 2008). The other copyright holder for IOER highlights an even more explicit aspect of market-based incursion: The Illinois Department of Commerce and Economic Opportunity, which is the state organization tasked with recruiting, retaining, and supporting business development opportunities for the State of Illinois. The interests of this particular sponsor may well be served by maintaining a labor force trained and educated for the markets Illinois seeks to cultivate for the benefit of the state's economy and the business interests which make up the most visible share of that economy. Thus, there is much attention within the site devoted specifically to career and technical education and much less focus on educational topics not tied specifically to vocation. The site's ultimate utility is therefore potentially limited by the narrowed focus on traditional standards-based education and CTE subjects seemingly favored by its sponsoring institutions.

Outside of these three exceptions - OERu, Wikiversity, and IOER - in the majority of cases, the similarity between license-granting entities and the site being studied allows for a cleaner analysis of trends regarding the financial sources for the sites themselves, as shall be seen in Section 4.3. Importantly, this congruence allows the licensing decisions for each site to be understood as a function of the site itself. Those

licensing decisions, and their implications inform an understanding of the site's implementation of an open approach, for each site-entities' licensure generally diffuses toward the resources and courses networked through each site under consideration.

As may be seen above in Table 4.2, there are five specific categories of site licensure in play: CC BY, CC BY-SA, CC BY-NC-SA, Some Rights Reserved, and All Rights Reserved. Roughly, these five categories can be understood as those that employ Creative Commons licensing and those that rely all or in part on the specific intellectual property rights conferred by copyright. In terms of open proliferation, copyright has clear and significant limitations, but even Creative Commons licensing carries with it varying degrees of limitation, depending on the type of CC license applied. By critically situating a historical understanding of intellectual property (IP) as it relates to copyright, public domain, and the commons in the near-contemporary neoliberal moment, these implications may be then be examined within the case set.

Intellectual Property and Copyright as Limiting Factors

Moore (2001) provides the following working definition of intellectual property (IP): "Intellectual property is generally characterized as non-physical property that is the product of cognitive processes and whose value is based upon some idea or collection of ideas. The *res*, or object, of intellectual property just is an idea or group of ideas" (pp. 12-13). Concerns about intellectual property typically center on the ongoing and explicit balance between the private benefits of ownership of intellectual labor and the social benefits of distributing useful knowledge or ideas. While IP may be divided into a number of groups, the two that generate the most interest are usually patents and copyright (May, 2010), the former of which is the main concern of this section.

The first copyright act is generally agreed to have been the Statute of Anne, passed by the British Parliament in 1710, which granted all published works a copyright term of fourteen years, and which could be renewed once if the author was still alive. Works already published at the time of the act's passage automatically received a single term of twenty-one additional years (Moore, 2001; Lessig, 2004). From the beginning, copyright was viewed as a limited monopoly right (Lessig, 2004), one which was viewed as a "necessary evil" by scholars and policy makers of the Enlightenment such as Macauley and Jefferson, in that the granting of intellectual property rights through this vehicle was seen as the most socially and economically efficient manner to spur creative output while granting protective rights to the author (Boyle, 2002, 2003, 2007, 2008; Burton-Jones, 2003; Caruso, 2015; Davidson & Potts, 2017; Lessig, 2004; McCann, 2005; Meinrath, Losey, & Pickard, 2011; Murphy, 2005; Travis, 2000). While this opinion is now questioned (Burdeau, 2015; Lessig, 2004; May, 2010; McCann, 2005; Von Gunten, 2014), there is little disagreement about the limited scope of the original copyright laws, which have since been repeatedly expanded and extended, most famously by the Sonny Bono Copyright Extension Act (CTEA), which currently and retroactively extends the term of copyright to life plus 70 years, or up to 95 years for corporate authors (Lessig, 2004; Travis, 2000). Interestingly enough, the most significant expansions of copyright have occurred in the past century, which seems to coincide with rising corporate interest and lobbying to prevent the loss of recurring income incurred through valuable copyrighted intellectual property, as well as the harnessing of digital technology to expand and profit from said property. As Lessig (2004) notes:

> [C]opyright's duration has increased dramatically—tripled in the past thirty years. And copyright's scope has increased as well—from regulating only publishers to now regulating just about everyone. And copyright's reach has changed, as every action becomes a copy and hence presumptively regulated. And as technologists find better ways to control the use of content, and as copyright is increasingly enforced through technology, copyright's force changes, too. Misuse is easier to find and easier to control. This regulation of the creative process, which began as a tiny regulation governing a tiny part of the market for creative work, has become the single most important regulator of creativity there is. It is a massive expansion in the scope of the government's control over innovation and creativity; it would be totally unrecognizable to those who gave birth to copyright's control (Chapter 7, Paragraph 1).

Lessig is an important figure in the copyright resistance for at least two reasons: his failed attempt to adjudicate the repeated congressional expansions of copyright in *Elder v. Ashcroft* served to highlight the ongoing corporate influence upon the U.S. government's stewardship of the public interest in the matter of intellectual property, and his role as a founder of Creative Commons. I will now briefly sketch the applicable parameters of the commons to help foreground the utility of this concept within more or less open educational ecosystems.

Public Domain, The Digital Commons, And Openness

As copyright is retained for sites like edX, IOER, Khan Academy, MERLOT, and Curriki (see discussion below), it points to the limits of that licensing system as a component of open education, in that copyright law applies stringent restrictions to how content may be reused, remixed, redistributed, revised, or remixed -- if at all. The other sites under consideration feature Creative Commons licensing, which draw upon resources in the public domain and, using that licensing and attribution system deployed as an alternative to copyright, in the commons itself. It should be noted that it is entirely conceivable that a site might not feature any type of licensing at all and reside fully in the public domain itself, but none of the sites currently under consideration do so, possibly

for reasons related to the scaling of such a project in the current IP environment, whereby contributors are accustomed to at least the honorific of attribution, and critical end-users likewise expect a certain level of verifiability, such as that which theoretically accompanies documented attribution. As I consider implications and future directions in Chapter 5, I will return to the possibilities and limits of the public domain, but for now, the explication will remain focused on the research set.

In the era of copyright, the public domain is most easily conceived as a negative concept describing those works that are not protected by copyright. Lessig (2004) points out that the legal concept was introduced in 1774 through the English case of Donaldson v. Beckett, which helped to correct the notion that common law copyrights, as opposed to carefully proscribed civil law guiding versions, might be perpetual - although that seems to be the de facto situation today in regard to the willingness of the United States Congress to pass even more extensions, as previously noted. Boyle (2003) defines the public domain as:

> works that are completely free: free for appropriation, transfer, redistribution, copying, performance, and even rebundling into a new creation, [which might] itself covered by intellectual property. To the 'bundle of rights' conception of property, on the other hand, can be counterpoised the 'bundle of privileges' vision of the public domain, where we assume, for example, that fair use over a copyrighted work is part of the public domain (p. 68).

In my earlier discussion of the emergence of the classical spatial commons, I described the extent to which that notion grew in contradistinction to the process of enclosure by the landed classes. Much the same could be said of both public domain and the commons in the various formulations by which it is described as a function of the open Internet: "digital commons" (Meinrath et al., 2011), "information commons" -- favored by scholars of library science, law, and policy (McCann, 2005) -- and "knowledge commons" (Hess & Ostrom, 2007): both are circumscribed by notions of intellectual property and

concomitant enclosure. Boyle (2003) cites Lessig's more positive and legalistic definition of the commons in the context of the open Internet:

> By a commons I mean a resource that is free. Not necessarily zero cost, but if there is a cost, it is a neutrally imposed, or equally imposed cost. . . No permission is necessary; no authorization may be required. These are commons because they are within the reach of members of the relevant community without the permission of anyone else. They are resources that are protected by a liability rule rather than a property rule (pp. 62-63).

This application of liability over property rule places the violability of the commons within a legalistic circumspection, which is unacceptable to those who uphold the immanence of the commons as a necessary condition to its realization (Von Gunten, 2014). Tactical legalistic recourse may be needed, however, in light of the trend toward greater enclosure of the commons, however it might be conceived, which was the animus behind the founding of Creative Commons as a legal project (Lessig, 2004).

To avoid the narrow conception of the commons as it's conceived in its formulations as information- or knowledge- forms (both of which are insufficient to capture the more complex praxis inherent in the OE motion), I favor the formulation provided by Meinrath, et al. (2011) as a "digital commons," for I agree with the authors that this metaphor, "may serve as a poignant reminder that the Internet's unique power has rested largely on its openness, on the fact that it is our most public media, and that it was created as a result of public support through DARPA and other tax-supported entities" (p. 428). This formulation is also consistent with Wiley's assertion that openness is always present in education, be it in analog or digital forms: "[O]penness is the sole means by which education is effected. If a teacher is not sharing what he or she knows, there is no education happening" (p. 16). At its heart, when we talk about Open Education, we aren't talking about anything new, necessarily, for pedagogy has always had an open and proliferative character. Rather, in the sense that it's applied in the present

research, we are explicitly referring to *digital* Open Education. This distinction is especially important to the extent that it makes it more clear the extent to which digital open education is perhaps even more prone to capture and enclosure than its traditional analog counterpart. I shall return to the import of the increased scope and reach of intellectual property as it pertains to the problem of enclosure, but first I will describe how the specific implementation of the licensing spectrum -- whereby we observe a continuity in the level of restriction upon site content, from less to more (see Figure 1, below) -- in the current case set sketches the boundaries of openness within the digital commons. The limits of the varying approaches to open and free education under consideration are delineated, in part, by the amount of restriction applied to the content or intellectual property represented by each mode or licensing applied to each site.

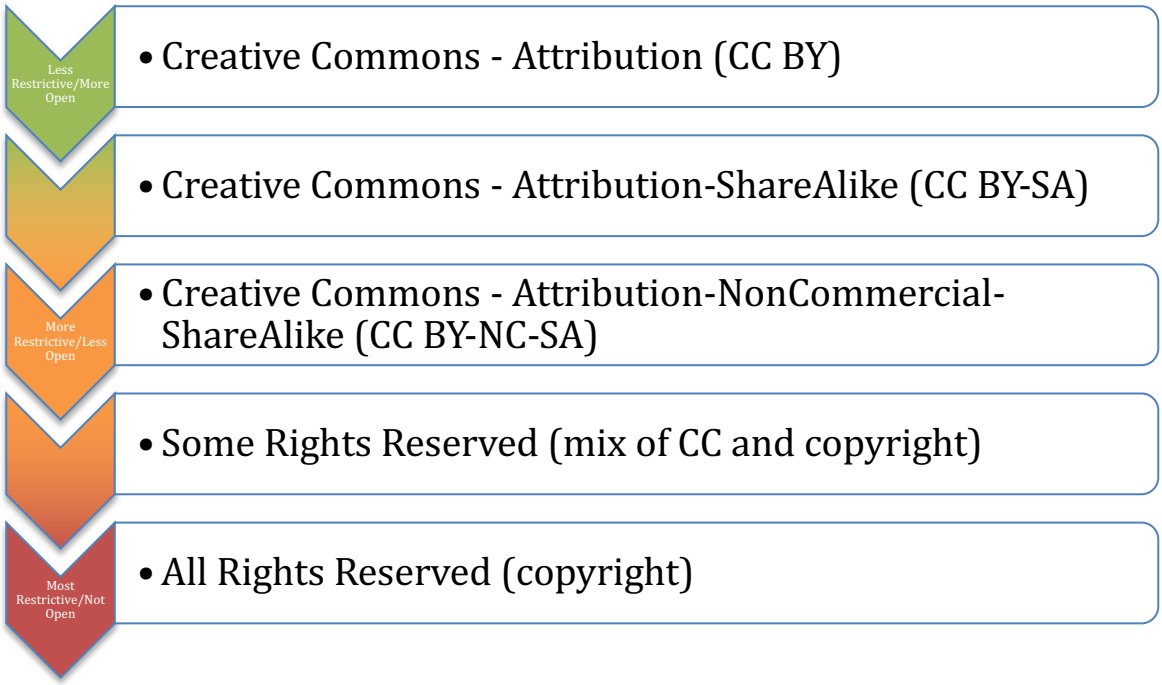

Figure 4.2: Spectrum of Restriction and Openness Levels Across License Types in the Case Set

Creative Commons Licensing

Because this study is focused on Open Education, the selection of sites for study includes a heavy concentration of cases that favor the open approach to the digital commons that lies at the heart of the Creative Commons framework outlined in Chapter Two. The various permutations of that framework provide a window into the exponential growth potential enabled by the least possibly restrictive approach, for as the level of restriction increases, so too does the downstream potential within a rhizomatic system decrease in equal measure. I'll begin by describing the least restrictive mode of applied licensing in a detailed manner and then refining the account as the level of restrictions increases.

Sites Licensed Via Creative Commons Attribution (CC BY)

Sites like the Open Education Consortium and OERu employ the least restrictive of the currently considered Creative Commons licenses, CC BY, which is defined by Creative Commons (2017) in this manner:

> This license lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they credit you for the original creation. This is the most accommodating of licenses offered. Recommended for maximum dissemination and use of licensed materials (https://creativecommons.org/licenses/).

The only "license" that is less restrictive that CC BY is CC0, which is also known as the "Public Domain Mark." CC0 is not used by any sites in the present case set, which leaves room for an eventual discussion of the radical, yet not widely pursued, possibilities of conducting open educational work completely in the public domain. That being said, the only "restriction" in place with CC BY is that some credit is given to the originator of the work. There are no restrictions on the amount or types of derivatives. The exponential growth potential - by which I mean the ability of educational learning objects within a thriving open ecosystem to be iterated, remixed, sliced, diced, chopped, translated,

appropriated, repackaged, or even sold across platforms and without regard to scale, to the point that their component ideas spread and perhaps take root across the many possible recipient nodes as can be imagined within that system - of this license lies in its allowance of derivatives without any real restrictions on that use beyond saying where the core idea came from.

Let's look at a course example to see how the proliferative ability of open education unfolds across open course content. OERu lists Critical Reasoning as a "current" OERu course (OERu, 2017, https://oeru.org/courses/?courses=all), but it's not until the end-user drills down into the course that its open roots begin to show. Clicking into the course brings up an overview page with a clickable link button to "Register to Start Learning." No registration or record entry is actually required, however; once the link is clicked, logging into the OERu system is purely optional, thus protecting the personal data of the learner. Once selected, the link brings the user to a Google site page hosted by Thomas Edison State College (https://sites.google.com/a/courses.tesc.edu/phi-130-critical-reasoning/home), where the CC BY license is also prominently displayed. There, the user can see from the attribution note at the bottom of each course module that the course was actually adapted from a Critical Reasoning course originally created by the University of South Africa, which can be accessed in its original form via a link to that original course content, which is hosted at WikiEducator (http://wikieducator.org/Critical_reasoning). Thus, we have a single course created by the University of South Africa, which has been adapted by an American public higher education institution -- Thomas Edison State University, located in Trenton New Jersey -- and made available via both their own free Google site and the globally- focused OERu site, which has its roots in New Zealand's Otago Polytechnic. Had the University of South Africa published this course with one of Creative Commons' NonDerivative

licenses or taken the All Rights Reserved approach of copyrighting its source content, this free adaptation and reuse would have been impossible without express written consent, which may or may not have been granted.

This adaptation and reuse is not without complications, however. In Thomas Edison State College's version of Critical Reasoning, downloadable resources are available, but in the closed, albeit widely accessible, formats of Microsoft Word documents and Portable Digital Files (PDFs) (https://sites.google.com/a/courses.tesc.edu/phi-130-critical-reasoning/resources). Going deeper however, to the original course contents within WikiEducator, we can find a wider list of "OER Resources," (http://wikieducator.org/Critical_reasoning/Course_guide/Resources) each of which feature a varied set of licenses, but which mostly also apply the CC BY license. By using closed media formats in their adaptation, Thomas Edison's use of closed formats creates a possible bottleneck for open proliferation, but access to the original content within WikiEducator allows for a much wider and more open possible use of the foundational source material. That being said, the maze of approaches to licensing and formatting is not always easy to navigate for those desiring fully open access. Open content may be free to access, but it's not always easy to do so within the networked approach favored by virtually every site within the case set.

The advantages of an open approach extend beyond mere access, though, into the realm of course design and creation. In OERu's course, Learning in a Digital Age (LiDA), the curriculum itself was crowdsourced from an extended "network of experts and professionals" using a combination of free applications (GoogleDocs), social media (Twitter), and the open wiki platform WikiEducator. LiDA was designed from front to back as an open course whose Creative Commons licensing allows institutions to adapt it to their own purposes or use it as-is within OERu's own free-access-but-accreditation-at-

cost model. According to Irwin Devries, a member of the team that developed LiDA and the Interim Vice President of Open Learning at Thompson Rivers University:

> The open design and development mode, rather than being fixed in one time and place and in a particular cultural setting, becomes viable for repurposing by learners, instructors, and others interested in reusing the content for new cultural, instructional, and technological settings (OERu, 2017, https://oeru.org/news/learning-in-a-digital-age/).

Importantly, every time the content is repurposed and reused, it provides yet another opportunity to that content to diffuse and take root elsewhere in the open ecosystem. As can be seen in the case of LiDA, this diffusion is one of the purposes of a fully open process.

Sites Licensed Via Creative Commons Attribution-Sharealike (CC BY-SA)

By far, the most-used type of licensing used by sites in this case set is Creative Commons-Attribution-ShareAlike, which is applied to site content by the OER Foundation, WikiEducator, Wikiversity, and P2PU. Creative Commons (2017) summarizes CC BY-SA thusly:

> This license lets others remix, tweak, and build upon your work even for commercial purposes, as long as they credit you and license their new creations under the identical terms. This license is often compared to "copyleft" free and open source software licenses. All new works based on yours will carry the same license, so any derivatives will also allow commercial use. This is the license used by Wikipedia and is recommended for materials that would benefit from incorporating content from Wikipedia and similarly licensed projects (https://creativecommons.org/licenses/).

It is instructive to describe the progressive restrictions of Creative Commons licensing in contradistinction to the next-lowest level of restriction under present consideration, which in this case is the previously-discussed CC BY. Both CC BY and CC BY-SA allow for both commercial and non-commercial reuse, but it's possible that someone could repurpose or adapt something from a site licensed as CC BY and then apply their own

more-restrictive CC license version. For example, if something is simply CC BY, I could reuse, redistribute, revise, or remix it in any I wanted, as long as I include an attribution. That means I could also apply Creative Commons Attribution-Non-Commercial-NoDerivatives (CC BY-NC-ND) to my reused, redistributed, revised, or remixed output, which would effectively prohibit it from being changed in any way or used commercially, thus effectively curtailing its downstream usage in the same manner I was able to use it. CC BY-SA prohibits this by allowing me to do most anything I want with the content, as long as I provide attribution, and, most importantly, share that content under the identical CC BY-SA license.

The ShareAlike aspect of the licensing functions to allow the content to remain open within the legal and creative open ecosystem by disallowing it from being locked further down. Both CC BY and CC BY-SA also allow for commercial as well as non-commercial reuse, which is a boon for those who favor the positive business case to be made in support of open proliferation (de Langen & Bitter-Rijkema, 2012a; Wiley et al., 2012). For example, if one wanted to repurpose course content, such as the readings and learning questions included as part of the Wikiversity entry "Introduction to Metaphysics: Cosmology & Ontology" (Wikiversity, 2014, https://en.wikiversity.org/wiki/Introduction_to_Metaphysics:_Cosmology_%26_Ontology/Ontological_Questions) into a for-profit book or e-learning course, they could do so provided that they granted a self-same CC BY-SA license to the derivative content, which would then prohibit that specific content from being locked down behind any kind of paywall, as it would need to be ShareAlike, as well, and couldn't have a more restrictive type of license applied. While this derivative could also be included in a not-for-profit context, it is the increased flexibility afforded by CC BY-SA that differentiates it from its NonCommercial sibling, CC BY-NC-SA.

Sites Licensed Via Creative Commons Attribution-Noncommercial-Sharealike (CC BY-NC-SA)

Like CC BY and CC BY-SA, CC BY-NC-SA allows users to reuse, revise, and remix the source content, but this specific Creative Commons license adds an important restriction on how the result can be redistributed. Creative Commons (2017) summarizes this license as follows:

> This license lets others remix, tweak, and build upon your work non-commercially, as long as they credit you and license their new creations under the identical terms (2017, https://creativecommons.org/licenses/).

This non-commercial restriction has important implications for those who see open education as a possible revenue stream, in that it explicitly prohibits commercial reuse and requires, through its ShareAlike component, all downstream products to enact the same prohibition. In this way, this particular license illustrates the ability of the Creative Commons system of licensure to forestall enmeshment of open learning assets in the market system favored by neoliberal adherents and capitalists, generally speaking. This benefit is offset by the closure of a possible source of access via the commercial sites that dominate today's digital learning landscape.

The NonCommercial restriction is important for sites like MIT Open CourseWare (2017) who want to make their proprietary content openly accessible while still protecting their organizational investment in intellectual property (IP), even while the ownership of that IP is held by the institution itself and not the many knowledge workers, including professors, whose work makes up the bulk of content accessible via MIT OCW. While the content of MIT OCW is openly accessible and generally shareable, MIT remains the only entity that can expressly profit from that content via their still-thriving brick-and-mortar university.

A different motivation may be found in the deployment of CC BY-NC-SA by OER Commons (2017). OER Commons is fairly unique within this case set in that it prominently features and promotes a full suite of OER creation tools, called OpenAuthor, with which users can author and share their own Open Education Resources via the OER Commons site: "Open Author helps you build Open Educational Resources, lesson plans, and courses (on your own, or with others) — and then publish them, to the benefit of educators and learners everywhere" (OER Commons, 2017, https://www.oercommons.org/#). There are three OpenAuthor tools available for sharing learning assets on OER Commons: (a) Resource Builder, which is used to create media rich documents that might form the contents of a Lesson or Module; (b) Lesson Builder, which is used to create interactive lessons comprised of Resource documents, and which is targeted at a possible K-12 audience; and (c) Module Builder, which is used to assemble Lessons into interactive Modules, and which is targeted toward a possible Higher Education audience (OER Commons, 2017). The key phrasing here is for whom this service is meant to benefit: educators and learners. By restricting commercial use, this benefit is protected from encroachment by explicitly market-driven sites that seek to make learning available, but only at a price. This restriction also functions to encourage the OER Commons community of users to actually build and share OER using OpenAuthor, for they can do so knowing that they will receive proper attribution and no one else will be able to directly profit from their intellectual labor. In this way, Creative Commons licensing directly supports open proliferation, even as it curtails commercial reuse.

The Complicated Nature of Reserving Some Rights

In the case of MERLOT (2017) and Curriki (2017), a more complicated basket of licenses are applied, some of which combine traditional copyright protection with the more permissive Creative Commons approach. For example, MERLOT's (2017) Acceptable Use Policy states:

> MERLOT is a free and open resource designed primarily for faculty and students of higher education. MERLOT is built on the collaboration of its partners, community members, registered members, and users. In that spirit, MERLOT allows access to its site and the materials therein for personal and non-commercial uses as set forth in this policy. Links to online learning materials are catalogued in MERLOT, along with other items such as peer reviews and assignments. MERLOT is committed to improving the effectiveness of teaching and learning by expanding access to high quality teaching and learning materials that can be easily incorporated into faculty-designed courses. By using MERLOT, you agree to the terms of MERLOT'S AUP and promise to use any content found on the MERLOT website, whether in whole or in part, for personal, non-commercial, and educational purposes only as described in this policy. You also agree to comply with prevailing United States laws regarding copyright and the Digital Millennium Copyright Act of 1998. All issues, disputes actions, or any other matters related the interpretation of the content of this Policy are at the sole discretion of MERLOT (http://info.merlot.org/merlothelp/index.htm#policies_and_practices.htm.).

This verbiage illustrates a fairly conventional application of the Fair Use exemption to United States copyright law, but MERLOT also selectively applies Creative Commons licensing, depending on the type of content and the creator of that content (see Tables 4.3 and 4.4 below).

TYPE	CREATOR	OWNER	LICENSE DESCRIPTION	LICENSE
MERLOT computer code	Staff	MERLOT	CC licenses do not apply to computer software. MERLOT source code is the property of the California State University	Not CC
MERLOT Leadership Library documents	Staff	MERLOT	*After permission*, Attribution, Non Commercial, Derivative, Share-Alike usage policy within partner's institution	Not CC
MERLOT Leadership Library, portal, & JOLT templates	Staff	MERLOT	*After permission*, Attribution, Non Commercial, No Derivative usage policy within partner's institution	Not CC

Table 4.3: MERLOT Partners-Only Intellectual Property (MERLOT, 2017, http://info.merlot.org/merlothelp/index.htm#policies_and_practices.htm)

TYPE	CREATOR	OWNER	CC LICENSE DESCRIPTION	LICENSE
MERLOT Info Help documents	Staff	MERLOT	Attribution, Non Commercial, Derivative, Share-Alike	BY-NC-SA
MERLOT public website content & images	Staff	MERLOT	Attribution, Non Commercial, No Derivative	BY-NC-ND
MERLOT Logos	Staff	MERLOT	Attribution, Non Commercial, No Derivative	BY-NC-ND
MERLOT portal content	Partner	MERLOT	Attribution, Non Commercial, Derivative, Share-Alike	BY-NC-SA
Peer reviews	Partner	MERLOT	Attribution, Non Commercial, No-Derivative	BY-NC-ND
Learning material metadata	Member	MERLOT	Attribution, Non Commercial, Derivative, Share-Alike	BY-NC-SA
Assignments	Member	MERLOT	Attribution, Non Commercial, Derivative, Share-Alike	BY-NC-SA
Member Comments	Member	MERLOT	Attribution, Non Commercial, No-Derivative	BY-NC-ND
Bookmark Collections	Member	MERLOT	Attribution, Derivative	BY
Course ePortfolios	Member	MERLOT	Attribution, Derivative	BY
Discussion Board Creation/submission	Anyone	MERLOT	Attribution, Non Commercial, No Derivative	BY-NC-ND

Table 4.4: Creative Commons Licensing for MERLOT Website-Resident Content (MERLOT, 2017, http://info.merlot.org/merlothelp/index.htm#policies_and_practices.htm)

Generally speaking, in this considerably varied approach there exists a spectrum of IP protection that increases as the creator moves up the spectrum of Members, Partners, and Staff of MERLOT. Notably, in all cases MERLOT retains ownership of all content, which makes MERLOT itself the ultimate arbiter of accessibility.

In practice, this basket of applied licenses is somewhat similar to the variation of licensing observed across all networked sites under consideration, but MERLOT, by virtue of its established history (MERLOT is the oldest site in this study, having been founded in 1997) and existing Partner relationships, benefits from its existence as a closed system, at least from a traditional IP perspective. MERLOT is thus able to explicitly identify and indemnify the various levels of its content via a formal, albeit complicated, systemic approach that is effectively off-limits to even more open and generally targeted fully-networked sites. This functions to protect the IP of its many Higher Education partners, which vary greatly in and amongst themselves in their application of open principles.

A very different approach is employed by Curriki (2017), which has an open history in its founding as a wiki for curriculum, but which has shifted to a much more commercial approach in an attempt to monetize its services and remain financially viable. Curriki (2017) features a unique movement whereby users are automatically granted a default CC BY-NC license, but with the following important caveat:

> 6.2 License Grant to Curriki to Host. By submitting or distributing Contributions through the Curriki Site, in addition to the Default License . . . You hereby grant to Curriki a worldwide, non-exclusive, transferable, assignable, fully paid-up, royalty-free, perpetual, irrevocable right and license to host, transfer, display, perform, reproduce, distribute and re-distribute, and otherwise exploit your Contributions, in whole or in part, in any media formats and through any media channels (now known or hereafter developed), in order for Curriki to provide the services offered on the Curriki Site (http://www.

curriki.org/terms-of-service/).

In this way, the CC BY-NC license functions to make sure that all derivatives are non-commercial, but in such a way that grants and protects the commercial use and reuse of the *source* content *solely to Curriki*. This curious innovation regarding the application of CC licensing makes more sense when one realizes that one may not even deploy the default licensing alone, for users are encouraged to opt-in to a separate license granted to Curriki (2017) for explicit commercial use:

> 6.3 License Grant to Curriki for Commercial Use. When You upload a Contribution, You will have the option to grant Curriki the right to exploit your Contribution for commercial purposes. If you choose this option when You upload Your Contribution, in addition to the Default License, you are granting Curriki a worldwide, non-exclusive, transferable, assignable, fully paid-up, royalty-free, perpetual, irrevocable right and license to host, transfer, display, perform, reproduce, distribute and re-distribute, and otherwise exploit your Contributions, for commercial purposes, in whole or in part, in any media formats and through any media channels (now known or hereafter developed) (http://www.curriki.org/terms-of-service/).

Again, the default CC BY-NC licensing works with this explicit licensing to effectively make Curriki the sole beneficiary of any financial remuneration afforded to shared content. This bastardization of the intent of Creative Commons licensing subverts that intent by not only "openwashing" Curriki's practices, but also providing a perpetual revenue stream to Curriki itself that is denied to the content creator. In terms of enabling the sharing of open content downstream, the net effect is not much different from an All Rights Reserved approach, but the movement by which Curriki obtains its ownership makes explicit the normally tacit enclosure of the digital commons as it pertains to Open Education.

All Rights Reserved: Free, But Not Open

There exists a small subset of the current research set which takes the All Rights Reserved approach to its site content, which, by virtue of the "4 Rs" (J. Hilton et al., 2010), automatically takes these sites out of consideration as truly open platforms. Of these, edX (2017) is arguably the closest to being conventionally open, in that it offers an open-source course creation platform, Open edX, and features a plethora openly-licensed content from various network partners. It is the variety of partners that edX (2017) enlists that causes concern:

> EdX regularly partners with many different types of organizations from all around the world - academic institutions (from large research universities to polytechnics and liberal arts colleges), non-profit institutions, national governments, non-governmental organizations (NGOs), and multinational corporations (https://www.edx.org/schools-partners).

The inclusion of multinational corporations as Partners, all of whom favor traditional copyright and Intellectual Property over copyleft and Creative Commons, not only mars the open-source approach touted by edX, it also functions as a Trojan horse for market interests to infiltrate the educational community edX attempts to anchor. In trying to be all things for all people -- there is even an "edX for Business" (edX, 2017, https://www.edx.org/business) that directly targets corporate users -- edX diffuses the open-source ideals it proclaims so loudly. A similarly narrow, but still nominally open, focus mars the misleadingly titled Illinois Open Educational Resources IOER (2017), which isn't as open as its name would seem to indicate. Here, rather than a corporate-aligned nonprofit claiming copyright, it's two state agencies, as previously discussed. Like edX, though, IOER earns its copyright by including paid and even for-profit courses in its linked network. Because so much of its content leads to commercial providers, IOER is arguably the most openwashed of the sites under current consideration.

The third site in this case set that employs All Rights Reserved copyright protection is the most unabashedly "closed" in the lot, Khan Academy (2017), and this helps to illustrate the limits of an All Rights Reserved approach in an open ecosystem, even when that which is copyrighted is offered free, albeit with the Intellectual Property restrictions afforded by copyright protection. Outside of Fair Use exemptions, users must obtain express written consent to feature Khan content in their own learning products, just as with any traditional copyrighted material. This effectively shuts down the proliferative ability of Khan content, for even if one receives such permission, all others who seek to reuse it must obtain similar express written permission, which is simultaneously cumbersome, risky (from the perspective of scalable access), and time-consuming. This free-but-not-open approach extends to the closed video media favored by Khan Academy.

Conclusion: Limited by Licensing

In the examples thus explicated, the proliferative potential of a truly open approach can be seen, as can the diminishing rate of open return that accrues when progressively more restriction is applied, from the various iterations of Creative Commons licensing to the differing ways that copyright is or isn't deployed to protect Intellectual Property within the current late-capitalist, neoliberal market system. For those who wish to honor the full proliferative potential of the "4 Rs" -- reuse, redistribute, revise, and remix (J. Hilton et al., 2010) -- CC BY is the best available option. The other Creative Commons licenses allow for specific applications of those four Rs, but with important restrictions on the context in which the content is reused, remixed, revised, and remixed, in that it must either be reciprocally licensed (CC BY-SA) or can only be done so in a strictly noncommercial manner (CC BY-NC-SA) that limits the downstream

financial viability of some end-users. From the perspective of a truly open ecosystem, those sites that employ any combination of copyright effectively distance themselves from the exponential proliferation that is the most promising of Open Education's many challenges to traditional market and educational hegemony.

In order for Open Education to function as an effective rhizome (Deleuze and Guattari, 1987) -- one which resists containment and enclosure by virtue of its networked multiversity -- this exponential proliferative ability must be maintained. The data collected from the sites in this study suggests that best way to achieve such limit-busting rhizomatic proliferation within the current legalistic and practical framework is to deploy Creative Commons licensing, preferably at the level of CC BY or CC BY-SA.

The limits of Creative Commons licensing as a necessary component of Open Education licensing are framed by that licensing system itself. When deploying content licensed as CC BY or CC BY-SA, there exists the possibility that such content could be reused, redistributed, revised, or remixed (J. Hilton et al., 2010) in a commercial setting. While this opens up the possibility of realizing some financial returns on open investment (de Langen & Bitter-Rijkema, 2012a) it also opens up the open content to appropriation by competing for-profit models and sites. For example, a for-profit learning site like Coursera (2014) could access and repurpose content from Wikiversity, which is licensed CC BY, provide the proper attribution, and locate the content within their own competing learning product. It is conceivable that the larger dedicated capital resources available to such for-profit sites could allow for a more attractive learning asset hosted on a proprietary Learning Management System (LMS) or Learning Record Store (LRS), thus creating a competitive advantage against the open site which originally hosted the content. In this way, the relative utility of the open content is devalued by virtue of the competing for-profit asset, which may or may not draw more end-users at the expense of

truly open access. While licensing learning assets with CC BY-NC-SA would prohibit such commercial reuse, it would do so by constraining users' desire to repurpose the work in the widest possible set of circumstances. This highlights a key question regarding Open Education: which type of Creative Commons licensing -- the dominant system under consideration -- best serves the needs of the organization and the learners it attempts to serve?

Creative Commons licensing isn't a given however, and a larger question relates to the need to employ any kind of licensing whatsoever versus allowing content to remain fully in the public domain. One might argue that Creative Commons provides a meaningful compromise behind legal and pragmatic protection of authorial rights, but the legalistic approach employed by Creative Commons also leaves CC-licensed content vulnerable to neoliberal capture through mechanisms such as commercial reuse that are enabled by the same system CC attempts to harness to enable proliferation and open reuse. Moreover, the reliance of Creative Commons upon established legalistic frameworks, while practical, also reeks of the "There Is No Alternative" (Harvey, 2005a) hegemony of neoliberal ideology, in that the alternative to the legal restrictions of copyrights resides in the parallel, if less restrictive, system of copyleft: accepted legal conventions are still at play. However, when considering the true possibilities at the limits of open education offered by an approach that completely eschews licensing requirements at all, it may be speculated that it would be harder to scale a learning platform that exists completely in the public domain, with no licensing or protection for site contributors. A learning approach based completely on the public domain, and with no protections for site contributors, would likely be much more limited in scope, at least at the outset, and would require a radical questioning of our reliance upon even the basic elements of attribution, at least beyond verifiability.

In terms of a deschooled (Illich, 1971) approach to Open Education, one of the sites with the least formal attachment to the institution of schools, at least on the basis of license-granting entity, also happens to be the most closed from the perspective of copyrighted content and the restrictions on open usage that thus apply: Khan Academy (2017). In terms of *accessing* learning networks outside of the bounds of traditional schooling, it may or may not matter at all how that content is actually licensed, for free-but-not-open content, such as that hosted by Khan, is just as accessible as its more open counterparts. The possibilities of an open approach truly emerge when we the production of learning assets is viewed at scale, and the pool of available contributors is enlarged to include the general public and not just the operators of a given site or its institutional partners. It is in the sharing across networks, and not at the level of mere access, that Illich's radical supposition of learning networks driven by learners themselves becomes realizable.

4.3: Funding of Open Education Within the Sites Under Consideration

Open Education: Free to Access, But Not to Create

Open education may be free to access, outside of the secondary affiliated costs of sharing personal information via registration and the sharing of demographic & usage data, but like any set of material assets -- even web-based ones -- there are costs affiliated with the production, dissemination, and maintenance of OERs, Wikis, MOOCs, and the engines which provide access to all of the above. While these costs may be hidden by their distribution across the applied educational ecosystem, especially amongst those sites which employ a crowdsourced or networked approach, they still form a considerable barrier to increased production and use of Open Educational Resources (Annand, 2015),

as well engagement in the Open Education Movement, broadly considered. Explaining the financial factors that must be considered regarding OER, Annand includes:

> the time needed to find and adapt, or produce OER . . . There may be costs involved to ensure that copyright compliance and legislated accessibility standards are met. Technological infrastructure for production and distribution needs to be supported. An OER initiative may be sustainable for a particular institution to the extent that it attracts new students, facilitates more transparent accountability of taxpayer funds, fulfills its public service role, or advances the institution's reputation, but these are at best uncertain or intangible benefits with limited direct financial reward (p.3).

Because of these costs and the open model's lack of direct remuneration, sustainability is a concern across Open Education projects. While the concrete data on expenses and economic efficiencies associated with the broad field of Open Education is inconclusive at best (Butcher and Hooser, 2012), a telling example may be found in the more consolidated and definable effort to construct an open textbook, which Bates (2015) estimates at $80,000-$130,000, based on his own experience crafting the open textbook *Teaching in a Digital Age*. In Bates' estimation, the main factor driving up cost for OER is the time investment required, which is important to consider if Open Education is ever to mature as a self-sustaining movement, for time is a common investment needed across the spectrum of possible open assets and structures.

Concerns about sustainability date to the inception of the first OCW project, and is one reason that many turn to Open Education's roots in the Free and Open-Source Software movement (Caswell et al., 2008). If the position is taken, as it is here, that those sites which hew most closely to the FOSS tradition are those that follow the framework of the "4 Rs" of openness (J. Hilton et al., 2010) -- Reuse, Redistribute, Revise, and Remix -- then it becomes apparent over the research set that those who stray from open-source principles do so at a specific cost: generally, the more dependent a site is upon

corporate and philanthropic largesse, the less comparatively "open" that site is. Thus, an important boundary of open education is its internal sustainability. For the purposes of this study, such internal sustainability is ideally reached through an application of open-source reciprocity, as opposed to a business model that requires dependence on capitalistic market forces or dependence on external funding, which has its own set of bounds.

Categories of Funding

In building out the specific categories of funding for the sites under consideration in this study, I began with the broad categories described by Cheng and Mohammed (2010) as part of their "Social Ecosystem Framework" (p. 9). This framework includes "Capacity Builders," which work to "build the capacity of the social sector" (p. 12) by providing support to non-profit organizations (NPOs) and making grants. In this category, Cheng and Mohammed specifically include both foundations and venture philanthropists. NPOs themselves fall into a second category of "Social Purpose Entities," along with non-governmental organizations (NGOs) and civil society organizations (CSOs), which both, unlike Cheng and Mohammed's figuration of "Capacity Builders" engage in direct social action by actually providing services or commodities. "Capacity Builders" help these helpers, but both act on behalf of "Beneficiaries," who are the people that directly benefit. Cheng and Mohammed's framework is itself a bit too broad for the specific categories that emerged during this study, thus the following "group [s] of players" (p. 9) have been specifically identified as playing a role in the sites currently under consideration: corporate, philanthropic, academic, individual, intergovernmental and non-governmental organizations (I/NGOs), and government. The multiple and overlapping nature of funding in OE may be seen in

Table 4.5. After describing and providing noteworthy examples of each "group of players," I will address the critical issues surfaced by a closer reading of funding by specific groups within the research set.

Site	Corporate	Philanthropic	Academic	Individual	I/NGOs	Govt.
Curriki	x	x	x	x	x	
EdX	x	x	x	x	x	
Khan Academy	x	x		x		
MIT OCW	x	x	x	x	x	
MERLOT	x		x	x	x	x
OER Commons	x	x		x	x	
OER Foundation: OERu, Wikieducator		x	x		x	x
P2PU		x	x	x		
Open Education Consortium		x	x			
Wikiversity				x		
IOER						x

Table 4.5: Overview of Funding Sources in the Current Research Set

Corporate

In addition to the many ways that private capital is intertwined with every mode of funding applied to the sites under present consideration, the most direct such way is

directly through corporate sponsorship. In addition to the marketing and public-relations advantages afforded to the sponsor, corporations tend to fund causes that support their own image, identity, and self-interest (Cunningham, Cornwell, & Coote, 2009). Curriki stands out as an example of this self-interest in action, in that it highlights "Technology Partners" who "recognize the value of making Curriki's learning resources part of their product, service or network offering." Curriki's "Technology Partners" include AT&T, Chevron, Oracle, Wayin, Huawei, The NASCAR Foundation, and Microsoft, and it is noted that "these partners collaborate with Curriki to deliver a joint integrated solution to K-12 teachers, administrators and educators." Many of Curriki's Technology Partners also function as "Content Partners" who "share their existing materials, educational programs and curriculum and create learning resources to share with the Curriki community. Content Partners may also invest with Curriki to develop or review education resources or curate special collections." This smaller list of corporate sponsors who contribute both technology and content includes AT&T, Huawei, Wayin, and Oracle. By assisting with delivery mechanisms and content focused specifically to a K-12 audience, Curriki's corporate sponsors admittedly "benefit from their affiliation with Curriki -- the leading global K-12 community of educators, students and parents" ("Curriki," 2017, http://www.curriki.org/about-curriki/partners-sponsors/).

Even venerable MOOC-provider MIT OpenCourseWare adds to the considerable support provided by its parent institution by enlisting sponsorship from companies like Accenture, Dow, Lockheed Martin, and Telmex, even while it touts Lenovo and Ab Initio as Underwriters and advertises in-kind contributions from global management consultants Bain & Company and technology giants like Google and Seagate ("MIT Open CourseWare," 2017, https://ocw.mit.edu/donate/our-supporters/). Throughout those sites that enjoy corporate funding, the participation of technology and telecom companies

is consistent with Spring's (2012) diagnosis of corporatism throughout Information and Communications Technology (ICT) applied to education and learning networks, but the inclusion of business consulting, chemical, energy, and aerospace companies, among others, raises the question of possible ideological compromises introduced by widespread corporate sponsorship.

Philanthropic

Financial support by philanthropies and foundations is the most common source of funding across the research set outside of individual donations, which are often considered as a subset of philanthropy. I will discuss individual donations separately and focus here on the support provided by private non-profit foundations as organized and conglomerated conduits for strategic financing. Jaumont (2016) differentiates independent or private foundations from corporate foundations, or even direct corporate support, thusly:

> Also known as family foundations, general purpose foundations, special purpose foundations, or private non-operating foundations, independent foundations are organizations that typically have a single major source of funding—usually gifts from one family or corporation rather than funding from many sources. Their primary activity is to make grants to other charitable organizations and to individuals, rather than the direct operation of charitable programs (Ch. 3, ¶ 12).

Amongst such foundations that provide financial assistance across the research set, two family foundations, in particular, loom large owing to the depth and breadth of their support: The William and Flora Hewlett Foundation, funded at the behest of Hewlett-Packard (HP) cofounder William Hewlett and his wife, Flora, and the Bill & Melinda Gates Foundation, likewise funded at the behest of Microsoft founder and former CEO Bill Gates and his spouse, Melinda.

i) *The William and Flora Hewlett Foundation (Hewlett)*

Hewlett was founded by the Hewlett family, including son Walter, in 1966 and is considered a separate entity from Hewlett-Packard's own charitable foundation. It is one of the largest philanthropic institutions in the United States, having awarded approximately $400 million in grants in 2016 to organizations around the world to "help people build better lives" ("William and Flora Hewlett Foundation," 2017, https://www.hewlett.org/about-us/). While Hewlett funds programs that focus on education, environment, global development and population, the arts, and philanthropy itself, it features a unique programmatic focus on Open Educational Resources, which is featured as one of two Education Program "strategies" alongside "Deeper Learning." Hewlett's stated goal for OER is to "provide equal access to knowledge for teachers and students around the world through high-quality, openly licensed educational materials" ("William and Flora Hewlett Foundation, "2017, https://www.hewlett.org/programs/ education/). This emphasis helps to explain why Hewlett is the most prolific foundation sponsor of the Open Education sites under present consideration, with no less than four Open Education site programs benefitting from their grant-making: MIT OCW (MIT Open CourseWare, 2017, https://ocw.mit.edu/donate/our-supporters/), OER Commons (OER Commons, 2017, https://www.oercommons.org/about), Open Education Consortium (Open Education Consortium, 2017, http://www.oeconsortium.org/ about-oec/), and the sites falling under the umbrella of the OER Foundation: OERu and WikiEducator (WikiEducator, 2016, http://wikieducator.org/OERF:Home/FAQs// Background_%26_History_of_the_OER_Foundation_%26_Strategic_Relationships).

ii) The Bill & Melinda Gates Foundation (Gates)

The Gates Foundation is by far the largest philanthropy in history (Saltman, 2010), with a current Foundation Trust Endowment of $40.3 billion and over 1,400 employees located

in offices in Seattle; Washington, D.C.; Delhi, India; Beijing, China; London, United Kingdom; Addis Ababa, Ethiopa; Abuja, Nigeria; and Johannesburg, South Africa ("Bill & Melinda Gates Foundation," 2017, https://www.gatesfoundation.org/Who-We-Are/General-Information/Foundation-Factsheet). The work of the Gates Foundation is organized into four divisions: Global Health, Global Development, U.S. Program, and Global Policy and Advocacy. Gates' work in the educational arena is centered within the U.S. Program where, in addition to work addressing issues of "social inequity and poverty" in Bill Gates' generational home of Washington state, the "primary focus is on ensuring that all students graduate from high school prepared for college and have an opportunity to earn a postsecondary degree with labor-market value" ("Bill & Melinda Gates Foundation," 2017, https://www.gatesfoundation.org/What-We-Do). I will discuss some of the possible implications of this focus, especially the aspect of "labor-market value," but it is instructive to note the two sites in the current research set that enjoy Gates Foundation support: Khan Academy ("Khan Academy," 2017, https://www.khanacademy.org/about/our-supporters) and EdX (EdX, 2017, https://www.edx.org/friends-edx).

As has been noted previously, Khan Academy is not open in the sense deployed within this study, but is rather merely free-to-access. That it draws the support of the Gates Foundation indicates the apparent lack of emphasis which Gates places upon an open approach to education, teaching, and learning. This lack of emphasis contrasts directly with the explicit support for Open Education expressed by the William and Flora Hewlett Foundation ("William and Flora Hewlett Foundation," 2017, https://www.hewlett.org/programs/education/). Importantly, Khan Academy is one of only three sites in the current research set that employs an All Rights Reserved copyright for site content. In addition to IOER, which, as shall be seen, is an express outlier in its

exclusive reliance on governmental funding, the only other site under consideration that applies full copyright protection, as opposed to some level of Creative Commons licensing, is Khan Academy's stable mate in terms of Gates funding: EdX (EdX, 2017, https://www.edx.org/friends-edx). Importantly, EdX also includes Microsoft, the company that launched Bill Gates' personal fortune, among its many corporate "partners" (EdX, 2017, https://www.edx.org/schools-partners). This is noteworthy because Gates, through Microsoft, made his fortune by taking full advantage of intellectual property laws to leverage ownership rights -- and profits -- over technological ideas and innovations that had been more freely shared by the previous generation of software and hardware developers (Saltman, 2010). In the curtailing of open access via copyright by both Khan Academy and EdX may be found an iteration of Gates' blueprint for success at Microsoft, as described by Saltman, but herein applied to the free exchange of educational assets in an open context: use copyright laws to lock down what was once freely accessible, and then leverage those copyrights to benefit the hosting organization(s) at the expense of competing platforms that rely on open and crowdsourced content.

Academic

Many of the sites within the present research set benefit from academic sponsorship, typically in the form of partnerships with existing schools of higher education that contribute both institutional support, as in the case of MERLOT (2017), and often the MOOCs and OER that make up the bulk of these sites' networked content. MERLOT stands as a good example of how multiple academic institutions can partner to create a more accessible and well-sourced open platform. MERLOT began as an institutional effort of the California State University system, specifically in 1997 when the CSU Center for Distributed Learning developed and made accessible a project

modeled after the National Science Foundation-funded project, "Authoring Tools and An Educational Object Economy." The next year, in 1998, three other state university systems partnered in collaboration with CSU: The University of Georgia System, Oklahoma State Regents for Higher Education, and the University of North Carolina System. Each of these four initial partners contributed $20,000 in cash to help develop the software at the heart of the MERLOT projects and another $30,000 in in-kind support, including the learning resources at the heart of MERLOT. By 2000, twenty-three higher education systems and institutions had become Institutional Partners of MERLOT, each contributing $25,000 and in-kind support for a part-time project director and eight faculty to support their institutional investment. Throughout its history, CSU has maintained a leadership role in the operations of MERLOT on behalf of its partners (MERLOT, 2017, http://info.merlot.org/merlothelp/index.htm#who_we_are.htm).

This kind of collaborative approach is common to most of the sites that enjoy academic support from institutions of higher education, with the founding organization typically enjoying a similar level of oversight on behalf of its institutional partners. Other examples of this collaborative approach to the development and operations of an open education platform may be seen in the Open Education Consortium, the sites sponsored by the OER Foundation (OERu and WikiEducator), and EdX. The Open Education Consortium is more global in its sponsorship than MERLOT, with Sustaining Members representing both the global north and south (Open Education Consortium, 2017, http://www.oeconsortium.org/about-oec/). The OER Foundation, which directly sponsors both OERu and WikiEducator, primarily utilizes its higher education institutional "Anchor Partners" to drive content and processes, with financial sponsorship coming explicitly from the Commonwealth of Learning and UNESCO (WikiEducator, 2016, http://wikieducator.org/OERF:Home). Like the OER Foundation in that it separates its

collaborative academic partners from its funding sources -- and unlike MERLOT and OEC, both of which conflate collaborative and funding partnerships in their listings of supporters -- edX "receives generous support from individuals and corporations," as well as "funding from several foundations" whom it calls "edX Friends" (edX, 2017, https://www.edx.org/friends-edx). The academic "Partners" of edX help to provide access to over 1300 courses in the MOOC model and include Founders MIT and Harvard, as well as "Contributors" UC-Berkeley, the University of Texas System, Australian National University, Boston University, Georgetown University, RWTH Aachen University, Sorbonne Universites, TU Delft, the University of Adelaide, the University of British Columbia, the University of Queensland, and the University System of Maryland. EdX also lists many more global schools, as well as non-profits, corporations, and international organizations, as edX "Members" (edX, 2017, https://www.edx.org/schools-partners#membership).

As Annand (2015) notes, the greatest barriers to increased OER production and use are largely financial, which creates a dependence on support from sponsoring universities, as well as governments and philanthropic organizations. Regarding the former, across the sites in this research set which enjoy direct support from academic organizations may be seen a remarkable diversity of contributing institutions, both in terms of their locations and the types of institutions themselves, which include traditional brick-and-mortar universities, community college systems, and both open & distance learning organizations. A major exception to this observation is MIT OCW, which exists largely as a medium for MIT's own MOOC-based coursework, although MIT also contributes support to both the OER Foundation and EdX. Sites which leverage partnerships with existing academic institutions benefit from expanded access to coursework and resources, but it should be noted that many sites don't feel the need to

partner directly with schools of higher education. Instead, these sites seemingly fill in the financial gap with individual donations and utilize more crowdsourcing to help provide content.

Individual Donations

Sites which forgo academic sponsorship and collaboration in favor of individual donations include Khan Academy, which is also highly funded by the Gates Foundation (Khan Academy, 2017), OER Commons (2017), P2PU (2017), and Wikiversity (2015). Notably, these sites all forgo the MOOC-based methodology that is largely favored by those that partner closely with higher education institutions, but it should be noted that even those academic-driven sites also employ individual contributions to provide funding for their operations and services. In fact, of the funding categories identified in this study, the class of individual donations is tied with the previously-discussed class of sites supported by philanthropy as the most prevalent means of financial support, with eight members of the research set relying on each in their largely matrixed approach to funding. Unfortunately, no sites in this study publicize the exact admixture of funding that makes up these matrices of support, Nonetheless, in light of the prevalence of individual donor support, it seems that it is not the presence or absence of individual funding that correlates with a MOOC-based approach, but rather the presence or absence of formal academic partners. Those sites that partner with academic institutions seem to replicate the course structures prevalent in those institutions through MOOCs, while those that do not are freer to deviate from a reliance on MOOCs through formats such as wikis.

One site, in particular, is notable in its exclusive reliance on individual donations: Wikiversity, which is among the most open in the present research set in terms of its

licensing and adherence to the "4 Rs" model. This reliance on individual donations is consistent with the approach taken by Wikiversity's parent organization, the Wikimedia Foundation, and is in-line with how its famous sibling, Wikipedia, is funded: "Wikiversity is entirely dependent on funding from personal donations and grants, so anything you can contribute in order to help us sustain our work is deeply appreciated" (Wikiversity, 2015, https://en.wikiversity.org/wiki/Wikiversity:Getting_involved# Advertise_and_Extend_Access_to_Wikiversity_to_new_People). While a strict reliance on individual funding may seem somewhat limiting at first glance, the massive potential of private donations by individuals could actually be seen as a possible advantage, especially in light of the freedom provided from academic structures, such as the existing canon and dependence on MOOC methodology, and possible neoliberal infiltration via the ongoing corporatization of higher education (Giroux, 2009). As Edwards notes in his critical account of venture philanthropy, individual philanthropy is an often-overlooked source of funding:

> Most philanthropy comes from individuals (70 percent of U.S. households give money to civil society every year, some $295 billion in 2006. Compare that with Google.org's projected spending of $175 million over the next three years, or the $100 billion that the Gates Foundation is likely to give away during the lifetime of its founders -- a very impressive number, but a fraction of what could be channeled to social transformation by individuals (up to $55 trillion between 1998 and 2052 in America alone) (Edwards, 2008, p. 23).

What the figures cited by Edwards make clear is that, as great of an impact as foundational philanthropy can have, it is dwarfed by what could be made possible if the power of individual donors were to be fully activated to fund open education. While the sites under consideration do not publicize the precise admixture of their funding sources and an exhaustive investigation into how these sources break down is beyond the scope of this study, it may be surmised that in the combination of individual donor support and

other external funding that is largely prevalent across the research set, it may yet be possible to focus more on the source that carries with it less ideological and corporatocratic entanglement: donations by individuals.

Intergovernmental and Non-Governmental Organizations (I/NGOs)

A non-governmental organization (NGO) is, "any non-profit, voluntary citizens' group which is organized on a local, national or international level" ("Definition of NGOs," 2017). By far, the most active source of NGO support for open education is the United Nations, whose U.N. Development Programme serves as an in-kind contributor to MIT OCW (MIT OCW, 2017, https://ocw.mit.edu/donate/our-supporters/), TEACH UNICEF is a Content Partner for Curriki (Curriki, 2017, http://www.curriki.org/about-curriki/partners-sponsors/), and United Nations Educational, Scientific, and Cultural Organization (UNESCO) serves as an active partner in multiple aspects of the OER Foundation, the parent organization of both OERu and WikiEducator, including the co-sponsorship, along with the intergovernmental Commonwealth of Learning (CoL), of Chairs in OER at Open Universiteit, Athabasca University, and Otago Polytechnic, which is the home institution for the OER Foundation (WikiEducator, 2016, http://wikieducator.org/Category:OERu_Partner). While the UN is itself properly considered intergovernmental organization, it played an instrumental role in the organization of NGOs as a broad category of civil society organizations and continues to champion the work of NGOs across various humanitarian arenas (Wikipedia, 2017, https://en.wikipedia.org/wiki/Non-governmental_organization). A purer example of major NGO support is the Institute for the Study of Knowledge Management in Education (ISKME), who helped to create OER Commons as part of the Hewlett Foundation's worldwide OER initiative (OER Commons, 2017,

https://www.oercommons.org/about), which illustrates the interconnectedness of philanthropic endeavors in a matricized understanding of open education funding, such as that which underlies this account. What makes this particularly problematic is the extent to which these matrixed "policy networks," (Ball, 2012, p. 5) exist outside of and beyond traditional representative governance, such as that of the quasi-democratic state, and instead function at the behest of their own corporatocratic and technocratic denizens.

While NGOs may or may not be funded by philanthropic foundations, they often exist with a narrower and more definable mission, which necessitates their inclusion here as a separate category of funding for the open education platforms under consideration. The more tacit nature of these NGOS help to shine a light on the extent to which an open educator provider may or may not be compromised by organizations whose missions are aligned to a discernible neoliberal perspective. Examples of NGOs whose work display a sharp neoliberal bent include Curriki's Content Partners: the Consortium for Entrepreneurship Education and Council for Economic Education (Curriki, 2017, http://www.curriki.org/about-curriki/partners-sponsors/), as well as the Intergovernmental Organizational support of edX by the International Monetary Fund (IMF) (edX, 2017, https://www.edx.org/schools-partners), which has long functioned as a handmaiden of neoliberal economic "reform" (Harvey, 2005a).

Government

Separate from the relatively intermingled category of Intergovernmental Organizations and Non-Governmental Organizations are those Open Education sponsors who are directly affiliated with a government or governmental agency. To the extent that we might consider modern capitalistic nation-states as neoliberal states whose mission is to help create and sustain conditions favorable for the accumulation of private capital

(Harvey, 2005b), such direct governmental support is particularly problematic, insofar as such neoliberal states impose capitalistic ideology through seemingly disconnected governmental functions. such as through education and other "services" to citizens While a classic understanding of neoliberalism displaces the state in favor of the market, contemporary neoliberal political rationality has effectively repurposed democratic institutions themselves so as to more effectively inculcate market principles (W. Brown, 2006). The function of this repurposing may be seen in the only site that exclusively relies on governmental funding: IOER (2017).

IOER is a joint product of the Illinois Department of Commerce and the Illinois State Board of Education. As such, its focus is primarily on career readiness and helping educators find resources aligned to Illinois and Common Core Standards. Both of these foci are compromised by the neoliberal project. Career readiness speaks to the deficit neoliberal understanding of education as tied to preparation and participation in the labor market and of knowledge itself as a distinct form of capital to be apportioned on behalf of knowledge consumers (Tienken, 2013). Ample research supports the implication of the standards movement in the effort to "reform" public education along corporate lines and to benefit private industry through the economic conditions of such reformation (Apple, 2007a; De Lissovoy, 2013; Hursh, 2015; Johnson, 2013; Lipman, 2011b; Saltman, 2007, 2012; Sloan, 2008; Sturges, 2015; Tienken, 2013), but IOER is notable in this research set for its unique accommodation of this effort in an open context: OER accessed through IOER are categorized, searchable, and ratable explicitly by the educational standards to which they, and presumably the instruction using those OER, align (IOER, 2017, https://ioer.ilsharedlearning.org/ContentDocs/bc2cc184-41bf-464b-a363-11a554da4126/60/AboutIOERSept14_2015.pdf).

It is worth noting that this alignment of neoliberal economic and educational interests in an open context may be an artifact of the fact that the United States, which forms the national context for IOER, is, in many ways, a neoliberal state whose economic and social policies serve the interests of industry and its donors in the post-*Citizens United* era. IOER is also unique in its focus on both K-12 and adult career education, which is not the case for the international sites under consideration, which are largely focused on postsecondary or extrascholastic learning. Other open sites in this research set that feature governmental support are not marred by the degree of implication in neoliberal projects that are arguably present in IOER. The sites that fall under the aegis of the OER Foundation, OERu and WikiEducator, are supported by the New Zealand Ministry of Education (WikiEducator, 2016, http://wikieducator.org/OERF:Home/FAQs/Background_%26_History_of_the_OER_Foundation_%26_Strategic_Relationships) yet feature none of the explicit focus on standardization and career-readiness that are the hallmarks of IOER. MERLOT lists the US Department of Labor as an Organizational Partner, yet its focus is much more squarely on the higher education structures and content that are favored by the majority of its partners and affiliates. In the cases of the OER Foundation sites and MERLOT, it seems as if the larger humanitarian and broader educational missions of each serve as a counterbalance for the narrow state-sponsored focus inflicted through a site entirely dependent upon governmental funding, as is the situation with IOER.

Open Education Funding as A Mechanism for The Infiltration of Neoliberal Ideology

In the next section, the broad curricula of the sites that make up this research set will be investigated for evidence of neoliberal infringement, including possible alignment with the capitalist, as opposed to humanist, imperatives of site sponsorship. In this

section, the intent has been to ground that ongoing investigation in the very real -- if somewhat obfuscated through varied matrixing and unpublished financial specifics -- milieu of how sites' operations are externally funded. In this section, my overall argument is that external funding carries with it an explicit set of challenges, described herein, that serves to frame the possibilities of Open Education in a neoliberal context. By explicating the theoretical ramifications of philanthropic and academic support of Open Education, their commonality and concomitant status as a "given" to ensure viability are problematized to lay the groundwork for a critical understanding of the structure and operation of the sites in this research set. Funding for these sites establishes the mechanism by which neoliberal infiltration conceivably occurs within their curricular and pedagogical formations.

While some of the discussion of the funding categories listed above hinted at the critical issues raised by how Open Education is funded across the research set, two of the most common classes of funding and support are especially problematic: academic and philanthropic, while a meaningful counterbalance may be found in the third of the most common classes thus enumerated: individual donors. Direct corporate sponsorship is obviously problematical, especially as it pertains to the limitations and possibilities of open education in the context of neoliberal incursions upon the educational commons. Gurn (2016) describes the growing awareness that corporate sponsorship, in the explicit form of Public-Private Partnerships (PPPs), carries with it specific strings, including the increased corporatization of educational practices and the greenwashing of questionable business practices. However, my specific concerns here relate more to the seemingly innocuous roles played by philanthropies and academic institutions because of the implicitly hegemonic nature of each, especially when considered in light of the comparatively tacit ideological discount placed upon sites which are directly sponsored

by corporate interests: because of their longstanding association with the public cause, it may be harder to recognize the mechanics of neoliberal infiltration in play across philanthropic and academic efforts than it is to see the same in the more obvious example of overt corporate sponsorship. In any case, explicit corporate support is not nearly as common across the more properly open sites in the present research set as philanthropic and academic sponsorship prove to be. I would here repeat the point made above, namely that a reliance on corporate and external sponsorship leads to generally less open sites and resources, especially as impacted by the furtherance of copyright protection by private capital interests in lieu of leveraging Creative Commons licensing to support the "4 Rs." It is the hidden costs of philanthropic and academic support that are potentially more problematic, especially in the context of sites that are seemingly more open than directly corporate-funded sites like Khan Academy, Curriki, and edX. My critique of corporatism is herein addressed as a component of the challenges presented by philanthropic and academic support of Open Education.

The Problem with Philanthropy

Saltman (2010, 2011) draws a distinction between the "scientific" industrial philanthropy that accompanied the capitalistic rise of private wealth accumulation by industrialists like Carnegie and Rockefeller and the newer model of venture philanthropy that is now associated with the work of the Gates Foundation. The "traditional" philanthropic industrialists, "defined giving through a sense of public obligation . . . the industrialist gave back some of the surplus wealth he had accumulated" (Saltman, 2011, p.1), which, while not unproblematic in and of itself, at least left the organizational decision-makers in charge and was not restricted to a specific ideological approach, for there was "a distance between the donors and the uses made of the money in education;

once given, money was not closely controlled and directed in its uses" (p. 2). Even the relative freedom afforded to the recipients of traditional scientific philanthropy had a hidden cost, though, for it helped to consolidate the hegemony of 19th and 20th century economic arrangements by producing consent and educating citizens to accept the socioeconomic arrangements that were favorable to the titans of industry from whom the largesse apparently flowed. According to its critics, the cultural project of scientific philanthropy meant, "assimilating the intellectuals of subordinated classes and groups into the dominant institutions, creating new dominant educational institutions (like schools, libraries, and museums), and instituting new mechanisms to produce knowledge in ways that reproduce social hierarchies " (p. 8). Thus, the relative freedom to support large public works without careful supervision of means and outcomes helped to mask the hegemonic results of industrial scientific philanthropic giving.

As dangerous as this classic form of philanthropic giving may have been, it pales in comparison to Saltman's (2010) account of the modern mutation of contemporary "venture philanthropy," which differs from the era of "scientific" industrial philanthropy in that it seeks to leverage venture capital, which drove the tech boom of the late-twentieth century, to affect an even deeper change at the level of ideology. Venture philanthropy does this by promoting the central tenets of neoliberalism, deregulation and privatization, and coding its work in the language of business and capitalism, applied specifically to public education, such as, "choice, competition, efficiency, accountability, monopoly, turnaround, and failure." In this way, venture philanthropy renders spending on public schooling as, "a 'social investment' that, like venture capital, must begin with a business plan, involve quantitative measurement of efficacy, be replicable to be 'brought to scale,' and ideally 'leverage' public spending in ways compatible with the strategic donor" (p. 2). Thus, as much as traditional scientific philanthropy may have represented

the interests of capital and its holders, its modern variant, venture philanthropy, extends those interests into the social and curricular imagination (Bourassa, 2011), for it expands the hegemonic cloak beyond institutions and into the socioeconomic fabric of civil global society through neoliberal economic "reforms" that extend into our understanding of the role of schooling. Whereas traditional philanthropy still held some vestige of an understanding the public good, venture philanthropy reduces all giving to the logic of the market. While there may be a laudable desire to effect positive social change voiced by the philanthropist, that desire nonetheless overlaps with the capitalistic interests that undergird those efforts. It may be an entirely worthy endeavor to put laptops in the hands of every student so that they can access Khan Academy videos and edX coursework, but Gates is on-record as mocking efforts to create low-cost laptops, preferring instead to showcase his company's more expensive consumer-grade offerings (Reuters, 2006). In the bold new world of Gates' imagination, students will enjoy the benefits of "flipped classrooms" using Khan Academy videos and then, as adults, learn to use Microsoft applications to perform technocratic work by taking Microsoft-sponsored courses in edX, all on Microsoft computers powered by Microsoft software. In Gates' investments in educational reform can be seen the dangers of self-serving venture philanthropy, at least to mere consumers of educational product.

In his account of the ongoing corporate "reforms" that threaten the very existence of public education, Hursh (2015) likewise singles in on the role played by those who see philanthropy not as a sharing of accumulated largesse, but rather as a social investment with an expectation of concomitant returns: "Venture philanthropists aim to use philanthropy to design and implement education policies reflecting their neoliberal political agenda of privatization, markets, efficiency, and accountability" (p. 34). Saltman (2010) frames this diagnosis within the work of the larger neoliberal project:

> Venture philanthropy in education needs to be understood as centrally an expression of neoliberal economic doctrine and ideology. At its most basic, neoliberal economic doctrine calls for privatization of public goods and services and the deregulation of state controls over capital, as well as trade liberalization and the allowance of foreign direct investment. As an ideology, neoliberalism aims to eradicate the distinction between the public and private spheres, treating all public goods and services as private ones (p.36).

Thus, when the venture philanthropist, as the charitable arm of Hursh's corporate reformer, emphasizes standardization of testing, teaching, and curriculum, she/he does so without accounting for the larger socioeconomic forces that must be considered as factors in educational outcomes. Such emphasis effectively curtails opportunities for critical interpretation, dialogue, and debate in ways that weaken society's ability to effectively intervene and transform (Saltman, 2010).

Perhaps no single philanthropy exemplifies the neoliberal character of this modern venture philanthropic approach more than the Bill and Melinda Gates Foundation, which has already been discussed as one of the most prominent funders of the Open Education sites under current consideration. As Spring (2012) points out, in the United States, the Gates Foundation, "acts like a shadow government by funding efforts to create online courses that are aligned with the recently created Common Core Standards" (p. 50). Of course, it just so happens that Common Core will benefit those who seek to create and distribute software and hardware to accommodate computerized learning at scale -- companies like Gates' own Microsoft. As Gates himself once said, "to get [personalized digital learning tools] out, common standards will be helpful" (Cody, 2014, p. 145). Importantly, Curriki, one of the sites that I investigate here, explicitly promotes Common Core standards, and is sponsored prominently by Microsoft (Curriki, 2017, http://www.curriki.org/about-curriki/partners-sponsors/), which provides a window into how Gates' personal championing of Common Core manifests itself in the corporate sponsorship of a site that promotes a standardized approach that benefits the interests of

Microsoft itself. Turning from online curriculum to pedagogy, Gates has shown a special fondness for MOOCs like edX, which his Foundation funds, seeing them as a method to scale lectures with which the "average classroom professor will have a hard time competing" (p. 132). While these dubious "innovations" of standardization and MOOCs are problematic in and of themselves, it is the shadowy, quasi-governmental manner in which they are introduced to the educational ecosystem that is most troubling and represents the worst possibilities of venture philanthropy.

Part of the problem with venture philanthropy is that it takes control of public spending out of the public's hands and places into the hands of the venture philanthropist, with little or no accountability. As a result of the tax deductions provided when charitable contributions are made, when the Gates Foundation donates ten dollars to the charity of its choosing -- or even its own creation -- four dollars are lost that would have otherwise been added directly to the public coffers through taxation (Saltman, 2011). The public loses oversight of that funding, which is ceded to the granting benefactor. Saltman (2010) notes that this has four important and interconnected implications: Public subsidies fund venture philanthropy. Taxes which would normally be used for the public good are effectively redistributed to the private hands of the foundation. Public funds thus fund private purposes, and those private purposes tend to support the ideological and material interests of "private elite power" (p.8). In this way, the nominally hierarchal oversight that citizens might normally expect through traditional democratic structures is effectively subverted into diffused heterarchical networks beyond the vision or reach of those same citizens (Ball, 2012; Hursh, 2015). Like stack ranking (Ovide & Feintzeig, 2013) in public schools, Gates' furtherance of MOOCs through his championing of edX may or may not be the best thing for learners, but the fight is not a fair one owing to the outsized power of the Gates Foundation's purse. Much the same could be said of his

support of the video modalities that drive the Khan Academy, another Gates Foundation favorite. What both of these sites also share is their possible role in attempting to displace traditional modes of education: edX's MOOCs over in-person teaching and learning and Khan's videos over interactive classroom discussion.

Arguably, the support of Open Education provided by the William and Flora Hewlett Foundation hews more closely to the classical "scientific" philanthropic approach than the venture strategy adopted by Gates. This assertion is borne out by the history of the Hewlett Foundation in their grants on behalf of African higher education (Jaumont, 2016). Instead of championing specific causes through massive strategic investments, as Gates has done, Hewlett utilizes a grantmaking approach that leaves more of the final decision-making in the hands of the grantees themselves. While Gates has "shifted his strategy from reforming schools to creating new ones" (Kovacs, 2011, p. 45) through efforts such as his recently-announced investment of $1.7 billion over the next five years to develop new curricula and school networks, most of which are charters and not traditional public schools (Strauss, 2017), at least Hewlett is supplementing, but not replacing, existing school networks. This can be seen both in their work with African higher education and their ongoing support of the OER Foundation, OER Commons, and the Open Education Consortium, all of which partner with local institutions in a way not seen amongst Gates favorites edX and Khan Academy. The difference may be slight, but at the level of hegemonic ideology, it's enormous. Situating his analysis within Foucault's notion of governmentality, Saltman (2011) explicates the extent to which corporate sponsors like the Gates Foundation inculcate neoliberal ideology by injecting market values into myriad aspects of society and promoting individual responsibility at the expense of collective obligation. The Gates Foundation explicitly "utilizes rationalities of neoliberal governance such as ‘expert knowledge’ to incite individuals to work on

themselves and become certain types of citizens—specifically, self-reliant, self-governing, and entrepreneurial individuals whose rational choices and investments determine their citizenship" (p. 126). This deeply ideological and specifically neoliberal character of venture philanthropy is especially troubling for the possibilities and limits of open education. I will return to the impact of this reframing of self in terms of the unintended consequences of an open approach at scale, but for now, the focus is squarely on the intended consequences of Gates support through venture philanthropy.

Beneficiaries of Gates' corporate-funded support like edX and Khan Academy represent a neoliberal "Trojan horse" holding a curriculum standardized to meet market needs, but wrapped in a shiny package of free resources. The hungry learner, educator, or administrator accepts such gifts at the risk of upsetting opportunities for diverse, inclusive, and critical curricula. The "Trojan horse" concept can be seen most strongly in edX, wherein Microsoft is one of the only corporations listed as a "School/Partner" in the filter menu of the site's search function (edX, 2018, https://www.edx.org/course). Selecting that filter brings up 230 courses directly sponsored by Microsoft, most of which are free, but -- like many of edX's offerings -- with paid options for certifications. All of the Microsoft-sponsored courses feature a strong technological focus, which serves Gates' corporate interests in two important ways: by redefining education as training to use technical tools, in many cases herein applications sold by Microsoft itself, and by limiting the curriculum to a strictly technocratic spate of offerings, effectively sidelining the humanities and critical perspectives. In this way, learners are cast as consumers and users of Microsoft products rather than critical and engaged social beings, thus serving the neoliberal market imperative. Much can be learned by noting the types and strategies of open education funded by oligarchs (Cody, 2014) like Gates. As seen in the case of

edX, MOOCs, as useful as they may be, earn a heightened level of scrutiny by virtue of their acclamation by venture philanthropy.

Academic Partnerships and the Neoliberal Mutation of Learning at Scale

Venture philanthropy is not the only source of funding for Open Education that betrays an alignment with neoliberal ideologies and methods. Steven Ward (2012) charts the process by which universities and colleges had, by the early twentieth century, largely consolidated and monopolized the flow of formal knowledge production in the West. Yet, despite their ultimate funding by states and national governments, the control ceded to institutionalized academic institutions was enabled to flow back to the commonwealth through the creation of a "knowledge commons" (p. 83) accessible to all through scholarship and the furtherance of academic research. This commons was encouraged by an accord agreed upon by these institutions and their state sponsors through the granting of a specific charter which allowed universities and schools to operate comparatively autonomously provided that they fulfilled their end of the bargain and effectively educated the broad citizenry, such as it was more-narrowly defined in those times. According to Ward, this uneasy balance shifted when neoliberal governments ascended globally in the 1970s and 1980s, as "state university knowledge production"(p. 91) and the interests of business were brought more closely together. In the period feeding into the contemporary era, the knowledge produced by universities came to be viewed as a commodity that could drive economic development and concomitant private profits. Gone was the Enlightenment-era taint of contamination by commodification; in its place came the economically liberal notion that the markets themselves would regulate this commodification on behalf of the public good. In the United States, this shift was formalized through the enactment of Bayh-Dole in 1980, which privatized and

commercialized federal research, thus allowing universities and their partner corporations to stake out patents on processes and products which were discovered under funding by the public dime, and to profit from those patents accordingly (Slaughter & Rhoades, 2004; Ward, 2012). As a result, higher education in the West has new skin in the game and has taken to reasserting its longstanding monopoly on knowledge formation, only this time without having to bother to "trickle down" the fruits of research to the people or the commonwealth, preferring instead to benefit its own self-interests and the profit imperatives of its corporate partners.

This movement has grave consequences for the partnerships identified in this study between higher education and open education. Coinciding with the change in "why" harkened by the shift away from public good to institutional and private gain, there has been a concomitant remaking of "how" knowledge is created, communicated, and consumed. Neoliberal advocacy of a "knowledge economy" (Ward, 2012, p. 115) and accordant social policies that link knowledge and economic development require specific efficiencies to bring to scale in a manner that benefits capitalistic accumulation; knowledge-making must also be made cheaper to bring fully to market, and market conditions must be established that allow profits to be realized. In order for this to happen, managerial efficiencies, business accountabilities, and desocialization of labor must be enforced to bring costs down and allow for corporate restructuring. The end result is a competitive and individualistic knowledge-making culture, which replaces the older collaborative and collective culture of the classic university (Ward, 2012). This move is consistent with the formation of what Peters (2003, 2013) refers to as "knowledge capitalism," whereby information is conflated with knowledge and commoditized in a manner that attempts to mimic the flows and constraints of monetary capital in a free market system. In Chapter 5, I will return to the cultural ramifications of

this process, but for now, it is important to note the move toward managerialism and accountability mechanisms described by Ward, for they stand as prime characteristics of the connection between academic investments in Open Education and the growing neoliberal infiltration of higher education.

Andersen (2010) makes the point that the sharing of OER by faculty may or may not be desirable to individual faculty for various reasons, including time infringements on tenure-track work, personal investment in open philosophy and practice, and technical facility on the part of engaged faculty. These insights are extended by Veletsianos and Kimmons (2012) and problematized to include the challenges of "the misappropriation of open scholarship;" "the need for scholars developing social and digital literacies;" "the consideration that technology is neither neutral, nor a single solution to problems facing education and scholarship;" and the possible introduction of "new dilemmas relating to power, fairness, and equity" (p. 181). What these accounts miss is the growing *obligation* to share openly within a higher education context, such as can be seen in MIT OCW, where the goal is to share, "virtually all MIT course content" (MIT OCW, 2017, https://ocw.mit.edu/about/) on the web. What MIT does with this content, including making it available alongside other institutions' offerings via their partnership with edX, is up to MIT, not the educators who helped to originate the curricula and pedagogy. As teachers and professors lose the choice to share, their academic work is effectively digitized at the behest -- and to the benefit -- of their employer, the institution itself. The fact that this is provided free-of-charge by MIT OCW may seem to minimize concerns about explicit capitalistic profit in the traditional sense, but there are certainly marketing and recruitment advantages afforded to MIT by this provision, to say nothing of processes, such as those put in place by OERu and edX, which allow the granting of formalized certification and credentialization at a designated financial cost. OERu touts a

"try before you buy" (OERu, 2017, https://oeru.org/how-it-works/) approach for formal credentials, and at edX, the learning may be free, but their "XSeries" (2017, https://www.edx.org/xseries) certificates most certainly come with a price. Ward (2012) compares digitization in the space of knowledge capitalism to the effect of automation during the Industrial Revolution: "Digitization allows knowledge to be broken into segments and sold 'by the piece,' 'on demand' and 'as needed' rather than in its bulkier, older, slower and less transportable form" (p. 127). There is a curricular cost in this process of digitization, for some fields of knowledge, including especially the humanities, are more resistant to the modular approach employed by "the new neoliberal knowledge schemata" (p. 120). As various fields, including what used to be my own, are squeezed out of the academy in the interest of neoliberal profit-making, those tenured professionals who are left face a shrinking market for their services, for digitization in an open and distance context is well-suited for part-time scholarly work in a manner that traditional course loads and academic research are not. Citing the work of Noble in the area of technology and distance learning, Giroux (2002) makes this point as part of his explicit critique of neoliberal entrenchment upon higher education: "online learning largely functions through pedagogical models and methods of delivery that not only rely on standardized, prepackaged curricula and methodological efficiency but also reinforce the commercial penchant toward training students and further deskilling the professoriate" (Sec. 4.5). To challenge the ongoing systemic effort to reframe intellectual contribution within a closed capitalistic understanding, it may be necessary to reframe what it means to participate in an open ecosystem.

The Gift of Donation: Reframing Open Participation

My cue for reconciling the neoliberal encroachments upon Open Education through corporatism, venture philanthropy, and academic sponsorship comes from Saltman's (2010) reading of Mauss's (1990) sociological landmark *The gift: the form and reason for exchange in archaic societies*. Previously in this section, I discussed the radical potential of individual financial donations -- a common understanding of gifting -- to replace corporate, academic, and philanthropic giving. While academic sponsorship and partnership also fulfill an important role regarding content, even that need could conceivably be filled through crowdsourcing if more public intellectuals could be persuaded to overcome the challenges posed by Andersen (2010) and Veletsianos and Kimmons (2012) through a conceptualization of their participation in Open Education as a gift, with all the social and civic advantages that come with it.

To Mauss, gift-exchange fulfills a specific social function that shapes the cultures and societies in which it appears in forms as varied as potlatch, *prestations*, or charity. The genius of Mauss's analysis is that it focuses not on the material worth of cost of the gift itself, but on the sociocultural contexts established by the giving of gifts and the expectation of a gift in return, however far down the temporal and material line that return might occur. The worth of the gift is less consequential than the act of giving. To Mauss, a chieftain gives out of a sense of *mana*, or power, and that giving increases the perception of his (sic) *mana* amongst the people, who give of themselves through tribute, either physical or material. Giving is not a zero-sum game, to use a modern colloquialism: in a social system circumscribed by gift-exchange, all gifts are part of the same reciprocal act, and that act itself defines the relationships, networks, and expectations of its members. To accept a gift without giving in return diminishes the social and civic standing of the recipient. Mauss's insight is that this motion is already in

play, even in capitalistic systems that seem to favor mere consumption and hoarding, which is why there are moralistic and social repercussions for selfishness, however inconsistently these may be applied in the current age. The simplicity of Mauss's understanding of giving across times and cultures is perhaps its greatest advantage, for as he notes in his conclusion:

> It is useless to seek goodness and happiness in distant places. It is there already, in peace that has been imposed, in well-organized work, alternately in common and separately, in wealth amassed and then redistributed, in the mutual respect and reciprocating generosity that is taught by education" (1990, p. 83).

It is through a fully open enablement of education and learning, such as that promulgated by Wikiversity, the only site in the present research set that relies exclusively on individual donations and crowdsourced content, that this elegantly simple conception of gift-exchange is most clearly articulated. As shall be shown, Wikiversity is not a perfect solution, for the Wiki medium has definite limits in functionality and application, but in terms of funding and sponsorship, it provides a clear alternative to institutionalized and externalized support, which up to now has been most dominant in terms of Open Education. Now, I will turn to the structure and function of the sites themselves to determine how neoliberalism is either promulgated or contested through curriculum and pedagogy as they are manifested in the act of learning via these sites, be it by consumption of learning assets, participation in MOOCs, accessing OERs, or reading and sharing via wikis.

4.4: Curricula and Learning Experience

Introduction: Research Sites as Specific Examples of Material Culture

In describing learning across these sites, attention is paid both to their framing and organization and, in select cases, the experience of actually engaging with the site itself

as a learner, for, as Hodder (1994) reminds us, meaning does not lie in the text itself, but in the reading and writing of it. Following Hodder's method, I will work between different examples of these sites as examples of material culture and make appropriate interpretations and analogies between them. I shall first identify the context within which these sites have similar meaning, which in this case means collections, curricula, and/or course sets. There are specific choices that are made in laying out the "course to be run" across the research set, and those choices become clearer in a comparison of the same. Identifying similarities and differences (Hodder, 1994) allows me to drill down in order to investigate the nature of these artifacts and to explicate some small part of the educational journey to be had in the experience (Pinar, 1975). Closing out with a final application of Hodder's method, I apply relevant critical theories to my selected data to help establish their possibilities and limits.

Course and Resource Trends Across the Research Set

In the sites selected for this research set, a noticeable trend emerges in a curricular focus -- herein understood as the courses and resource collections that are made available through most, but not all, such sites – on STEM fields As this is a theoretical project that surveys a wide variety of offerings, it is necessary to compare often-disparate entities at a very high level, but commonality may be found in the subjects and topics on offer. Thus, my analysis in this subsection occurs at the programmatic level, rather than that of the course or instructional object itself (Spector 2014); I will engage selected courses in the next subsection. While other open practices are often in play, for the purposes of this study, I will focus my curricular determinations on the dominant methodologies present in the sites within this research set, as noted earlier in Figure 4.1. Of these dominant methodologies, one class clearly doesn't feature any sort of curricula: networks. The other

classes of dominant methodologies may or may not feature some type of curricular organization, as shall be seen. An examination of the course and resource collection topics that make up this curricular organization will follow, along with an explication of the trend de-emphasizing Arts and Humanities and possible implications for our understanding of these sites as points of either resistance or reinforcement of neoliberal ideology. To ascertain the course sets, lists, and resource collections of each site, I utilized search functionality and tallied how results were listed and organized. For sites that specialized in OER, I examined the curated lists on offer, which were similarly organized topically. In all cases, the titles of course sets, lists, and resource collections utilize the terminology deployed within the site itself, with the exception of the summarized course groupings (STEM, Humanities and Social Sciences, etc.) in the included graphs, which rely on the author's own categorization.

Network Sites that Don't Feature Curricula

As a network for connecting peers and mentors in Learning Circles, P2PU does not feature centralized curricula, although it does link to the wide variety of free online courses which its more than 185 affiliated local Learning Circles use to ground their collaborative inquiry and learning. These courses are not linked in any other meaningful way and draw from the full spectrum of OER and MOOCs across fields, disciplines, and methodologies. These include sources as diverse as individual Research I universities in the United States; global institutions of higher education; MOOC providers like Udacity, edX, and Coursera; distance learning organizations like Open University and OERu; and various free and low-cost online educational providers such as Lynda.com and Udemy (P2PU, 2017, https://www.p2pu.org/en/courses/). While it doesn't offer any courses or

curricula on its own, the purpose of P2PU is to facilitate networked, interpersonal learning rather than provide content.

Content is a concern of the other site in this research set that doesn't feature unique or dedicated course work of its own: Open Education Consortium, in that the OEC is also a network, albeit one of "educational institutions, individuals and organizations that support an approach to education based on openness, including collaboration, innovation and collective development and use of open educational materials" (Open Education Consortium, 2017, http://www.oeconsortium.org/about-oec/). While the OEC does feature direct access to several curated STEM courses by women, it does so more by way of showcase than in any type of meaningful curriculum. The decision to highlight STEM courses is a curricular decision itself, in that it betrays a focus on STEM fields which is not uncommon in this research set, even if its gendered rendering of STEM teaching is both noteworthy and unique (Open Education Consortium, 2017, http://www.oeconsortium.org/projects/stem-for-girls/great-courses-and-teachers-in-stem/). OEC features a course search function, but this function is outsourced to OEC member institution MERLOT (Open Education Consortium, 2017, http://www.oeconsortium.org/courses/), which highlights the interconnected nature of Open Education in its currently reviewed state.

What both of these sites, P2PU and OEC, have in common beyond a lack of curricula is a networked approach, albeit from opposite sides of the learning/teaching equation. P2PU attempts to network learners to work together collaboratively, regardless of source materials, while OEC networks member institutions, primarily global institutes of higher education, to provide purely open content like that which P2PU seeks to leverage for its Learning Circles. It does so by showcasing their contributions, awarding excellence, providing support, and broadcasting impact. Neither site may, however, be

effectively interrogated at the level of content, owing to their specifically networked approach to Open Education.

Wikis: Two Distinct Approaches

Wikis exist because of the very networks they leverage to create and diffuse content by participating organizations and individuals, yet the two Wikis featured in this research set have very different approaches to leveraging these networks. WikiEducator eschews the creation and sharing of learning objects themselves in favor of providing resources and wiki-based structures for educators themselves to plan, develop, build, and connect OER. Like the OEC, WikiEducator outsources its course search functionality to an affiliated organization, in this case its sister site, OERu (WikiEducator, 2016, https://wikieducator.org/Main_Page). The course offerings of OERu are examined separately below.

Wikiversity, on the other hand, positions itself as a source of content for the Open learner, rather than the Open educator. It does so in the form of categorized and searchable "pages" that will look immediately familiar to anyone who has ever visited its sister site, Wikipedia. The difference between Wikipedia and Wikiversity is that the latter attempts to structure and organize the content of these pages in a manner that supports Ally's definition of online instruction: "Online instruction occurs when learners use the Web to go through the a sequence of instruction, to complete the learning activities, and to achieve learning outcomes and objectives" (2017, Conclusion). While other types of resources are in play across Wikiversity, as in all other sites under consideration, focusing on the broad category of courses that feature online instruction allows for an examination of the prioritization of contents as seen within its major subject-area pages

(Wikiversity, 2017, https://en.wikiversity.org/wiki/Wikiversity:Main_Page). The contents of these subject pages are summarized in Figure 4.3 below:

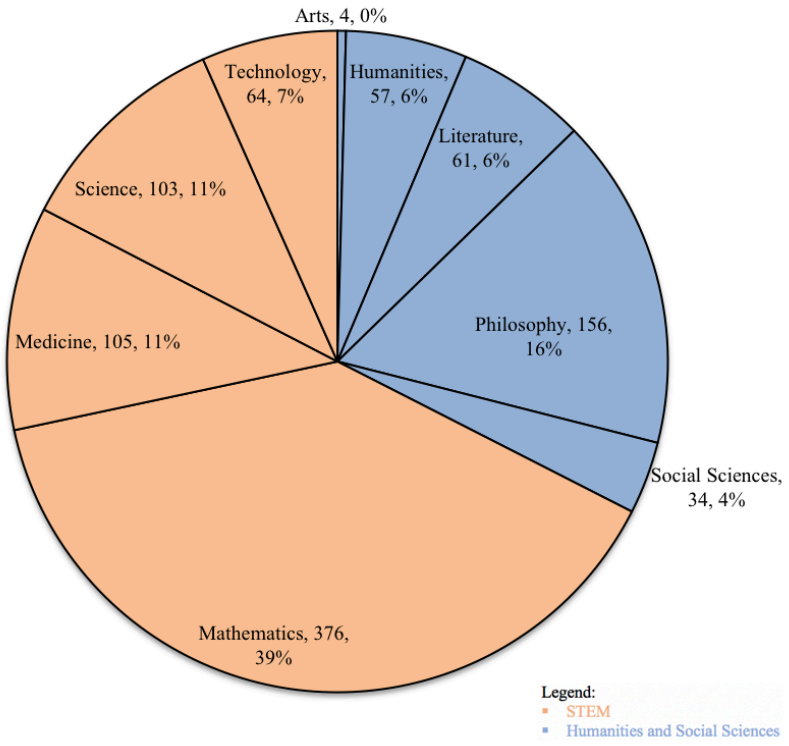

Figure 4.3: Subject Pages in Wikiversity

Here may be seen a definitive favoring of mathematics, which features more subject pages than the next three subjects combined. One challenge of wikis is that their networked natures make any theorization about the source of such imbalances impossible to pin down: the curricular decisions that affect the platform's offerings are distributed across a wide variety and swath of often-anonymous contributors. The capriciousness of Wikiversity's curricula may be seen in the completely unique position given to philosophy, which is not even featured as a major subject area categorization in any other of the sites presently under consideration. What is not unique is the short shrift given to

the humanities and social sciences, which stands out when the subject areas are further summarized by that grouping and those that align to Science, Technology, Engineering, and Mathematics (STEM) fields. As shall be seen, this favoring of STEM fields is the definitive trend across all sites in the research set, with varying degrees of impact.

Open Education Resources: Size Matters

Strictly considered for the purposes of curricular determination, this is the largest category of dominant OE methodologies. It also features the largest single learning object repository (Downes, 2017) in the present research set: MERLOT. As a learning object repository, MERLOT, like some other OER sites in this category, does not feature original courses, per se, but it does organize its materials into Academic Discipline Communities ("MERLOT," 2017), which allows for a parsing of the emphasis it places on specific such Academic Disciplines at the expense of others. Materials supporting each of these Academic Discipline Communities are accessed through Community Portals.

A detailed breakdown of the contents of MERLOT's voluminous Community Portals is illustrated in Figure 4.4 below:

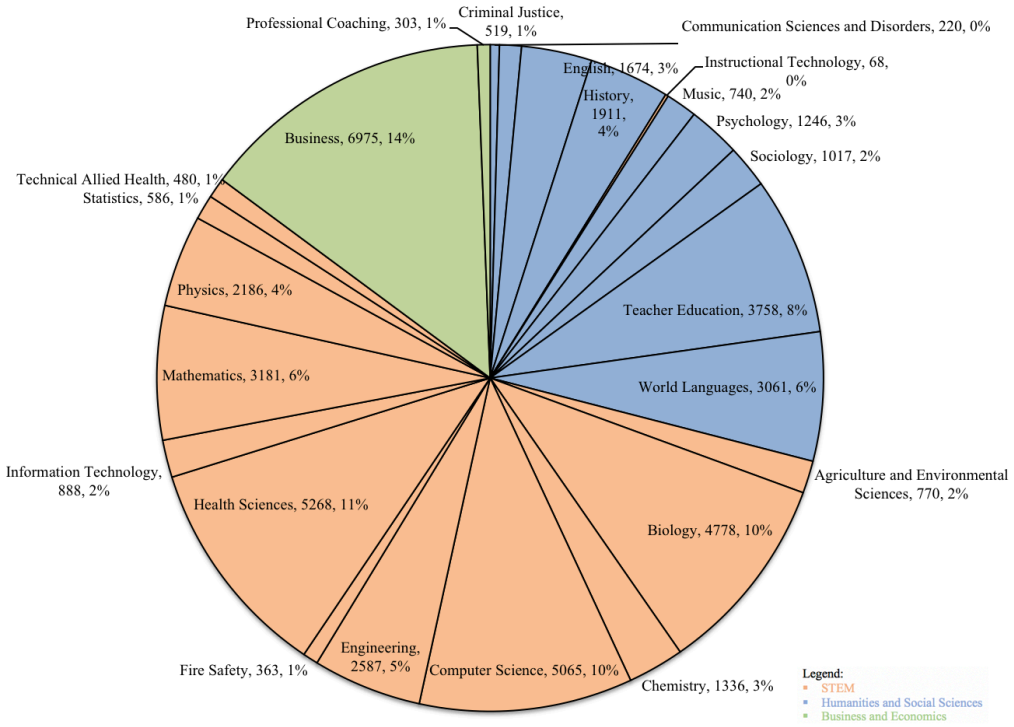

Figure 4.4: MERLOT Materials in Community Portals

Figure 4.4 helps to demonstrate the challenges inherent in analyzing networked and distributed sites such as those in the present research set. To conduct a thorough analysis of teaching and learning in so many specific course assets is beyond the scope of this study, as any attempt to do so at a macro level would require a level of sampling and selection that is virtually impossible when comparing disparate sites in the present manner. Recent scholarship has focused on specific Open Education methodologies, such as MOOCs (Conache, Dima, & Mutu, 2016; Haber, 2014; Losh, 2017), but because this

project investigates Open Education as a broad class, trends must be discovered by comparing like elements of dissimilar entities such as wikis, OER, OCW, MOOCs, and networks. Such a trend begins to emerge when the scope of vision is expanded to include the broad categories introduced in the previous summary analysis of wiki offerings (see Figure 4.3), with the addition of a single new wider category to encapsulate materials that don't fit as neatly into the breakdown of STEM vs. Humanities & Social Sciences. This category emerges here, in MERLOT, and shall be seen elsewhere in this data analysis: Business and Economics. The addition of this summary category is noteworthy because of the pressure it places upon the already-stressed Humanities and Social Sciences category. This pressure is reflective of the collective priorities of MERLOT member organizations, which are primarily institutions of higher education, but an even more egregious crowding-out of the Humanities and Social Sciences may be seen OER Commons (2017), as illustrated in Figure 4.5.

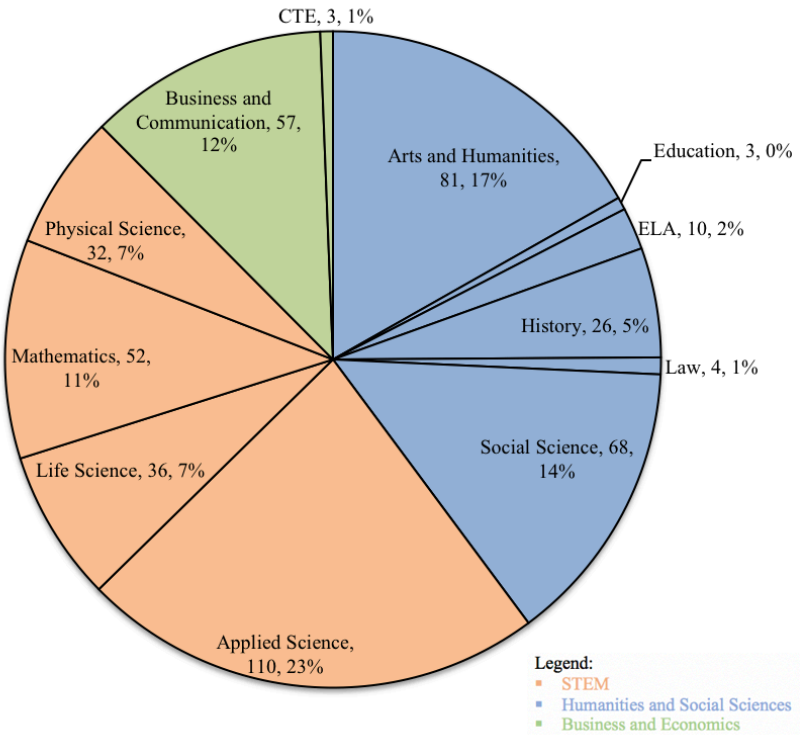

Figure 4.5: Full University Courses Indexed on OER Commons

I will discuss the implications of an out-sized focus on STEM as that trend presents itself further over the research set, but here I would like to point out a salient feature of how OER Commons sources its "Full University Courses" as a possible reason why there is so much emphasis on Business and Economics in OER Commons, and how this might indicate a point of neoliberal infiltration within that site.

The primary set of filters for accessing comparable course content via OER Commons may be found in the Full University Course Collection Resources page (OER Commons, 2017, https://www.oercommons.org/curated-collections/609?batch_size=100&sort_by=title&view_mode=summary). Here, the filters may be manipulated to parse out the contributions of specific Providers of course content. By far, the most prominent

such contributor is the Saylor Foundation, with 348 total course offerings (OER Commons, 2017, https://www.oercommons.org/browse?f.provider=the-saylor-foundation). At first blush, this might seem harmless: the Saylor Foundation is the parent entity of Saylor Academy, which is a non-profit working to offer "free and open online courses to all who want to learn" ("About Saylor Academy," 2018) Digging deeper, however, it may be verified that the Saylor Foundation is a subsidiary of the Constitution Foundation -- under whose 501(c)(3) status it operates -- and was founded in 1999 by Michael Saylor, the billionaire founder of data mining company MicroStrategy. Mr. Saylor is the sole trustee of the foundation that bears his name ("Michael Saylor," 2018). As such, it does not strain credulity to surmise that his business focus strongly influences the selection of courses that are made available for sharing via Saylor Academy's membership in OER Commons. While MERLOT's size makes it difficult to research in as much detail, its diversified portfolio of institutional contributors also insulates it from the outsized effect of a single contributor, such as may be seen in the case of Saylor Academy and OER Commons.

MOOCs: Different Audiences, Different Approaches, but Similar Emphases

In the two MOOCs within this research set, there is still a trend away from the Humanities, albeit less pronounced than in MERLOT. Notably the different audience for each may influence the types of courses made available instead. Looking at edX (Figures 8 and 9), the Humanities and Social Sciences are still under-represented at only 26% of the total course offerings. A similar trend may be seen in Khan Academy, where only 25% of courses offered are categorized as Arts and Humanities (Figures 4.6 and 4.7).

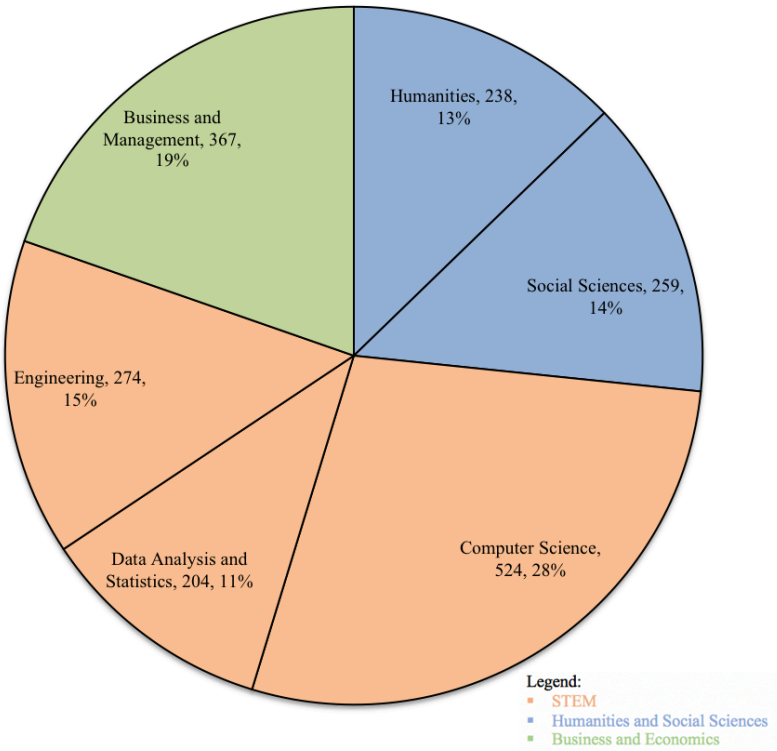

Figure 4.6: Courses in edX

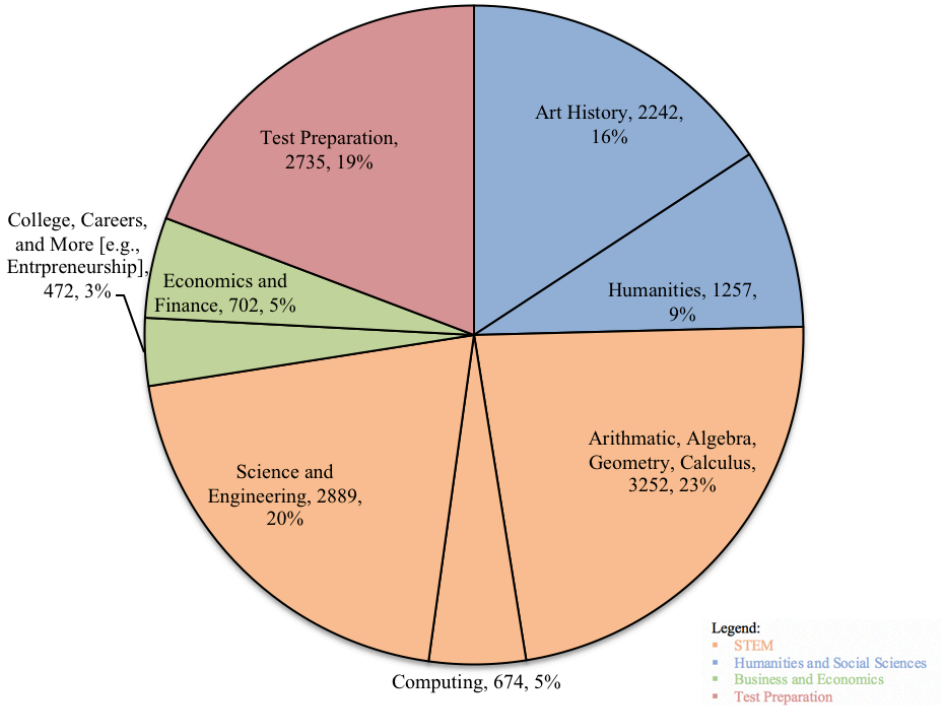

Figure 4.7: Videos and Resources in Khan Academy

Where edX and Khan Academy differ is in which categories outside of STEM encroach upon the Humanities. For edX, whose target audience is adult learners, the difference exists in Business and Economics, while for Khan Academy, whose primary audience is of school-age, the difference is made up in a unique category: Test Preparation. Specifically, this category focuses on preparing for standardized tests, which is a mode of learning that has long been understood as a Trojan horse for neoliberal restructuring and appropriation of public education (Ambrosio, 2013; Au, 2010; De Lissovoy, 2013; Giroux, 2009; Sleeter, 2008; Sloan, 2008; Tienken, 2013), as well as the antithesis of historical subjectivity (Pinar, 2013). That this category makes up a larger percentage of

the offerings in Khan Academy that either the humanities or art history (which is an interestingly narrow category in and of itself) is particularly troubling.

University Affiliation Helps

To provide a point of comparison, let's look at the two most (relatively) balanced platforms, both of which also happen to be the most closely tied to Higher Education: OERu (Figure 4.8) and MIT OCW (Figure 4.9).

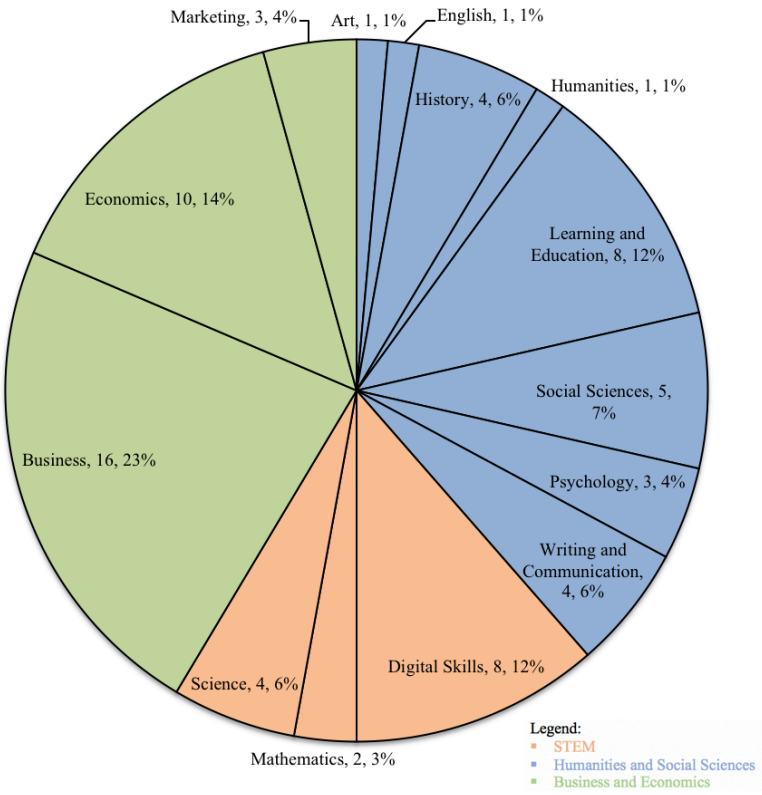

Figure 4.8: OERu Courses

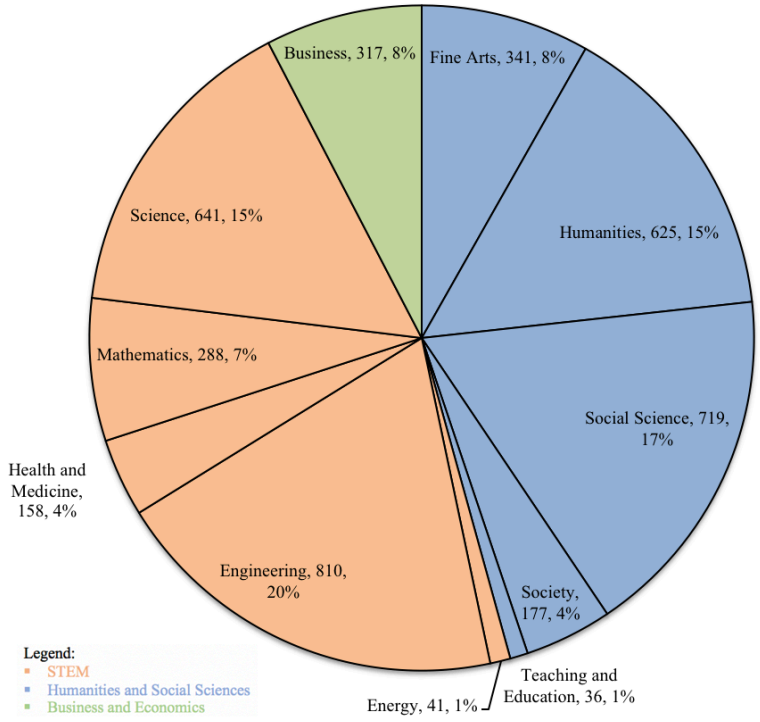

Figure 4.9: Course Topics in MIT OCW

Again, where these two platforms differ is less in the proportion allotted to the Humanities and Social Sciences than in the percentage of Business and Economics, except that comparatively, Business and Economics actually impinges upon STEM in the European example: OERu. This could be a function of demand, although scant research exists on this subject, or it could be because the oversized focus on STEM fields is associated more with American neoliberalism that its European variant, which is hardly surprising, considering that STEM originated in the United States as, "part of a long-established governmental strategy that posits scientific and technological literacy at the center of national prosperity and power" (De Freitas, et al., 2017, p. 552). In Figure 4.10

can be seen the comparative focus on Humanities and Social Sciences across the entire research set:

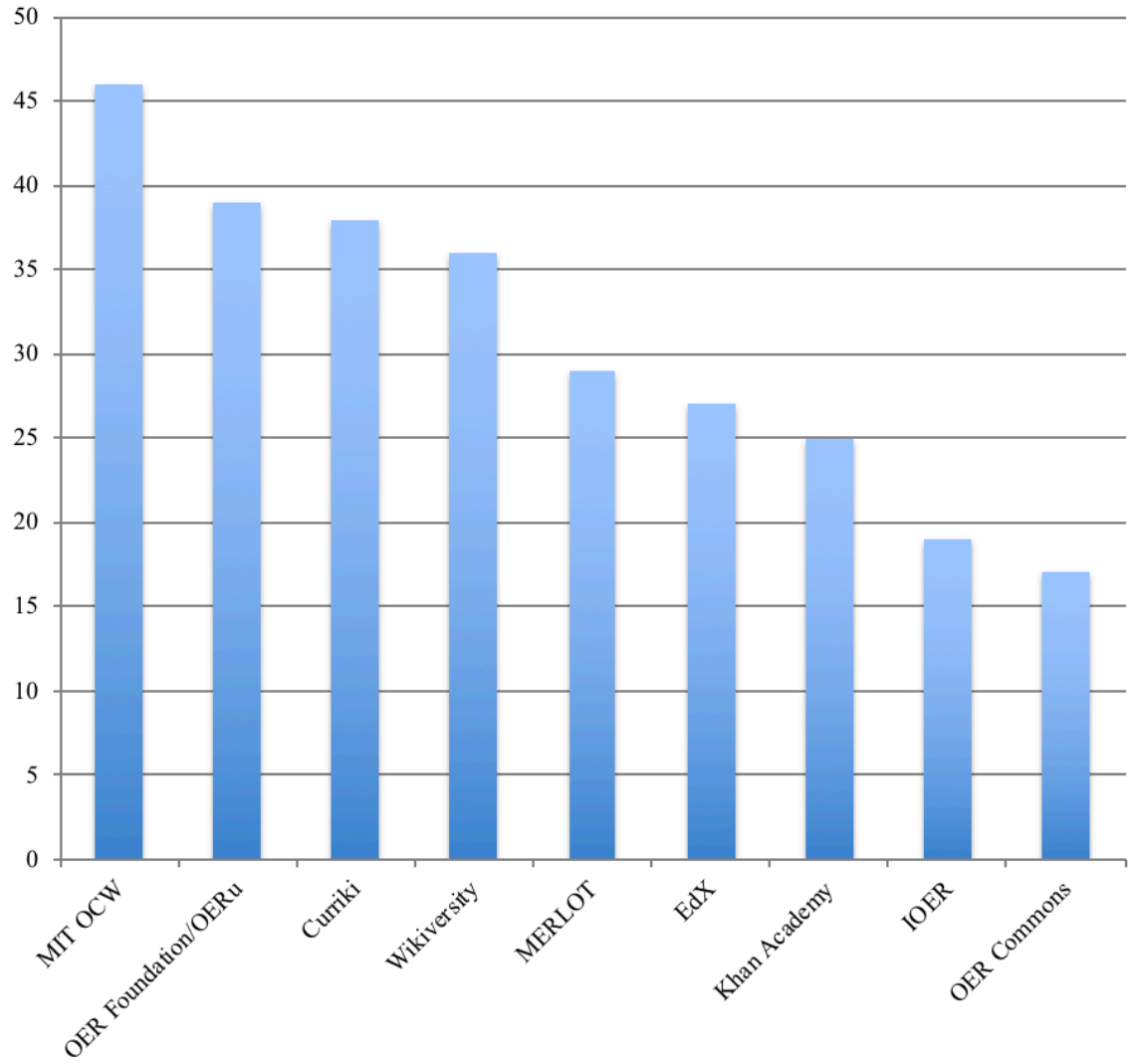

Figure 4.10: Humanities and Social Sciences as a Percentage of Total Curricular Offerings

With the exception of MIT OCW and possibly OERu, both of which are most closely intertwined with Higher Education and which therefore may benefit from the more

balanced offerings presumably provided by traditional brick-and-mortar universities, there can be seen a clear de-emphasis of Humanities and Social Sciences in favor of STEM and Business & Economics.

While part of this trend promoting STEM education at the expense of the Humanities and Social Sciences may be demand on the part of learners, it is worth questioning the source of this demand. Even STEM proponents admit that one reason STEM advocacy is desirable is because of a tendency for learners to be demotivated by the nature of technical work, high educational barriers of attainment, and discriminatory educational and hiring practices in the field (Hossain & G. Robinson, 2012). As a result, industry has undertaken a dedicated effort to "make STEM education cool for students," as a Samsung executive engineer (Steel, 2012) titled his op-ed on the subject for the PTA magazine. Years of dedicated media and political attention to the so-called "STEM crisis" has been highly effective at perpetuating the myth of simultaneous STEM superiority and shortage in educational outcomes (Stevenson, 2014). Thus, while learner demand may be one factor in the trend favoring STEM subjects, it is also entirely possible that such demand has been manufactured to serve the narrow interests of capitalist industry, for as businesses seek to increase their profits in an ever-tightening global market, one way this can be achieved is by driving down costs through an enlargement of the labor pool. As the unemployment rate increases due to the saturated market, salaries go down, and corporate profits increase. In this way, businesses strive to make the perceived STEM crisis seem real. Berghel describes the neoliberal STEM argument thusly:

> Drawn out, the argument goes something like this: P1) there are too few STEM graduates to satisfy the demands of business; P2) prima facie we should support policies that satisfy the demands of business (the neoliberal creed); C) therefore, we need to add more STEM graduates (p. 78).

In the privileging of STEM, Business, and Economics at the expense of the Humanities and Social Sciences we can perhaps see the impact of neoliberal labor practices on the courses of study offered by most, if not all, of the open-and-free learning sites in the present research set.

Comparing the two secondary-focused sites in the present research sets highlights the danger of labor-focused curriculum as well as a further example of the ideological problem of sourcing. As I've already established, IOER is unique in the research set in that it's sponsored directly by state government agencies, specifically the Illinois Department of Commerce and Economic Opportunity and the Illinois State Board of Education. The dominance of STEM and vocational offerings (Figure 4.11) betrays this site's genesis as a workforce education project.

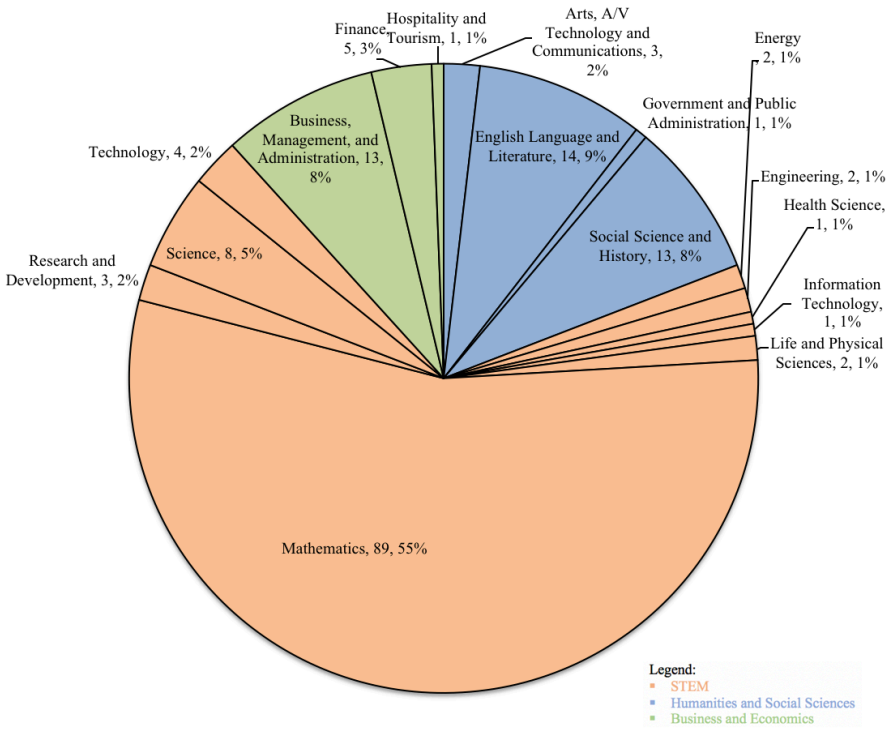

Figure 4.11: Resources in IOER Learning Lists/Learning Sets (IOER, 2017)

Broadly, IOER's focus on STEM fields overshadows the attention paid to social sciences and humanities, but more specifically, mathematics alone takes up the lion's share of the learning sets listed in IOER. In addition to the concerns about a broader STEM focus I've already noted, this outsized focus on mathematics is specifically troubling because of the extent to which that subject has been used to reproduce status through tracking and privileging rational knowledge over alternative ways of knowing as they are presented in humanities and social sciences. Moreover, there may be observed a disconnect between the "how" and "what" in mathematics instruction and its application outside of the schooling. The impact of this disconnect serves to alienate a significant portion of the population and interrupt their successful completion of the mathematical prerequisites for advanced academic achievement (Apple, 2017). While Apple, who is himself a former mathematics teacher, finds some hope in critical mathematics education, that is an approach sorely lacking in IOER, and indeed across the research set. In positive critical terms, STEM education has also been interpreted as both a raced (Bullock, 2017; Martin, 2016) and gendered (Martin, 2016) phenomenon, particularly in its reproductive tendencies. Like the absence of critical mathematics, the problematizing and experiential focus needed to counter these tendencies (Weinstein, Blades, and Gleason, 2016) is also lacking.

At first glance, the other secondary-focused site in the present research set, Curriki (Figure 4.12) appears to be more focused.

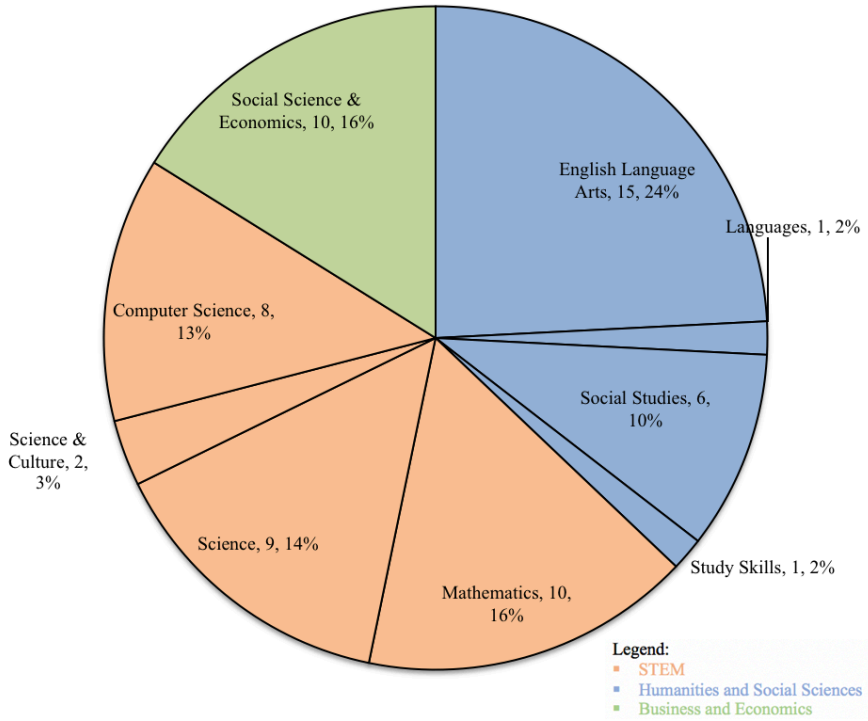

Figure 4.12: Curated Collections in Curriki (Curriki, 2017)

I was interested by the fact that Curriki grouped Economics and Social Science together in their Curated Collections, which disturbed my heretofore neat categorizations, so I took a closer look. What I discovered is that the entire Social Science & Economics Collection is made up entirely of video lessons from the "Learn Liberty" series, which is sponsored by the Institute for Humane Studies at George Mason University. This sponsorship is noteworthy because it illustrates a troubling convergence of neoliberalism and higher education in a nominally open learning platform.

According to the Institute for Humane Studies (IHS) website (https://theihs.org/who-we-are/):

> Our vision is for free speech, open inquiry, and intellectual diversity to flourish on college campuses; for all college students to have an opportunity to study and debate the ideas of a free society; and for a growing community of scholars to research and teach the principles and practice of freedom.

Importantly, they implement this vision out of a belief that "the principles of the classical liberal tradition – including individual liberty and responsibility, limited government, economic freedom, the rule of law, free speech, and open inquiry – are the foundation of a just and prosperous world." The Board of Directors includes Charles Koch himself, as well as two other representatives from the Charles Koch Foundation. The influence of this explicitly neoliberal sponsorship may be read in the course titles within this Collection, which include: "Feminism – A New Perspective," "Free Speech: Trigger Warnings, Academic Freedom, and More," and – perhaps most troublingly – "Real World Dilemmas of the Hunger Games: Liberty and Security." As with OER Commons and their dependence on the Saylor Academy, the exclusive involvement of a single ideologically-motivated organization illustrates the danger of a top-down approach to free-and-open education (as mentioned previously, Curriki is arguably less-than-open, although OER Commons is relatively more open). In order for Open Education to be both balanced and inclusive, curricula and learning must be opened up for participation from a broader swath of the teaching and learning community, lest it be hijacked by neoliberal and other ideologies which run counter to the democratic promise of the movement. Of course, merely being open isn't enough; the barriers for entry must be sufficiently low that learners can both contribute and learn. This simply isn't the case with Curriki, which, along with the previously identified bias toward STEM education across the research set, points to a definite limit of the Open Education Movement, broadly considered. I will

now turn to a richer description of specifically selected sites in order to more fully explicate the limits *and* possibilities of Open Education.

Learning Experience

Up to this point in evaluating the curricula of the free-and-open sites under consideration, the depth and breadth of most of these has made it necessary to investigate those curricula as courses-of-study at a very high level. To more fully understand the limits and possibilities of open education, it becomes necessary to take a deeper dive into selected sites to gain an appreciation of learning experience within and through sites that promote open practices. Rich description plays an important role in the theoretical application of grounded theory (Wiesche, Jurisch, Yetton, & Krcmar, 2017), so for this subsection, I am purposely selecting three sites that each offer different approaches to open learning: P2PU, edX, and Wikiversity. My criteria for selection of these "deep dives" are their categorization in one of each of the learner-focused dominant OE methodologies: Network, MOOC, and Wiki. OCW and OER-focused sites are rejected for an examination of learning experience because of their relative lack of easy utility for learners. OER, in particular, tend to be focused on those who will adapt and apply the resources on offer -- namely, educators and pedagogues -- and OCW may be informative in some regards, but would require significant adaptation to be of direct use by learners, as it typically provides more of a record of learning within the parent institution than an actual course or active learning opportunity.

Over the course of this study, I have heeded the advice of Wiesche, Yetton, and Kremar (2017), to employ a partial grounded theory methodology (GTM) portfolio -- specifically memoing and constant comparison -- in order to develop a rich description, as this portfolio approach to GTM is especially appropriate when "exploring a new

phenomenon, understanding IS-related phenomena in complex environments, or combining GTM with other research methods" (p. 698). One major challenge for this account is the near-autonomic capture of ongoing research data. As Rosenblum and Hughes (2017) assert, digital recording technologies can greatly support this effort during phenomenological and/or qualitative research. Thus, while engaging with each learning opportunity below, I used Gliffy software to schematize the ongoing processes. I also recorded salient screens using screenshots and took notes both digitally using a Livescribe system and via audio transposition to text using Dragon dictation software. The resultant artifacts served as mnemonic cues for the following account of my personal learning experiences. I now relate my personal learning experiences -- which are recounted here in the present tense to help convey the narrative in-the-moment (Van Maanen, 1989) -- within specifically selected sites. For this reason, I forgo research-based analytical engagement until the conclusion, so as to present a quasi-phenomenological account.

P2PU

As noted earlier, P2PU eschews content and focuses instead on its network of "Learning Circles." The process for finding and joining one of these learning circles is

presented schematically in Figure 4.13 below:

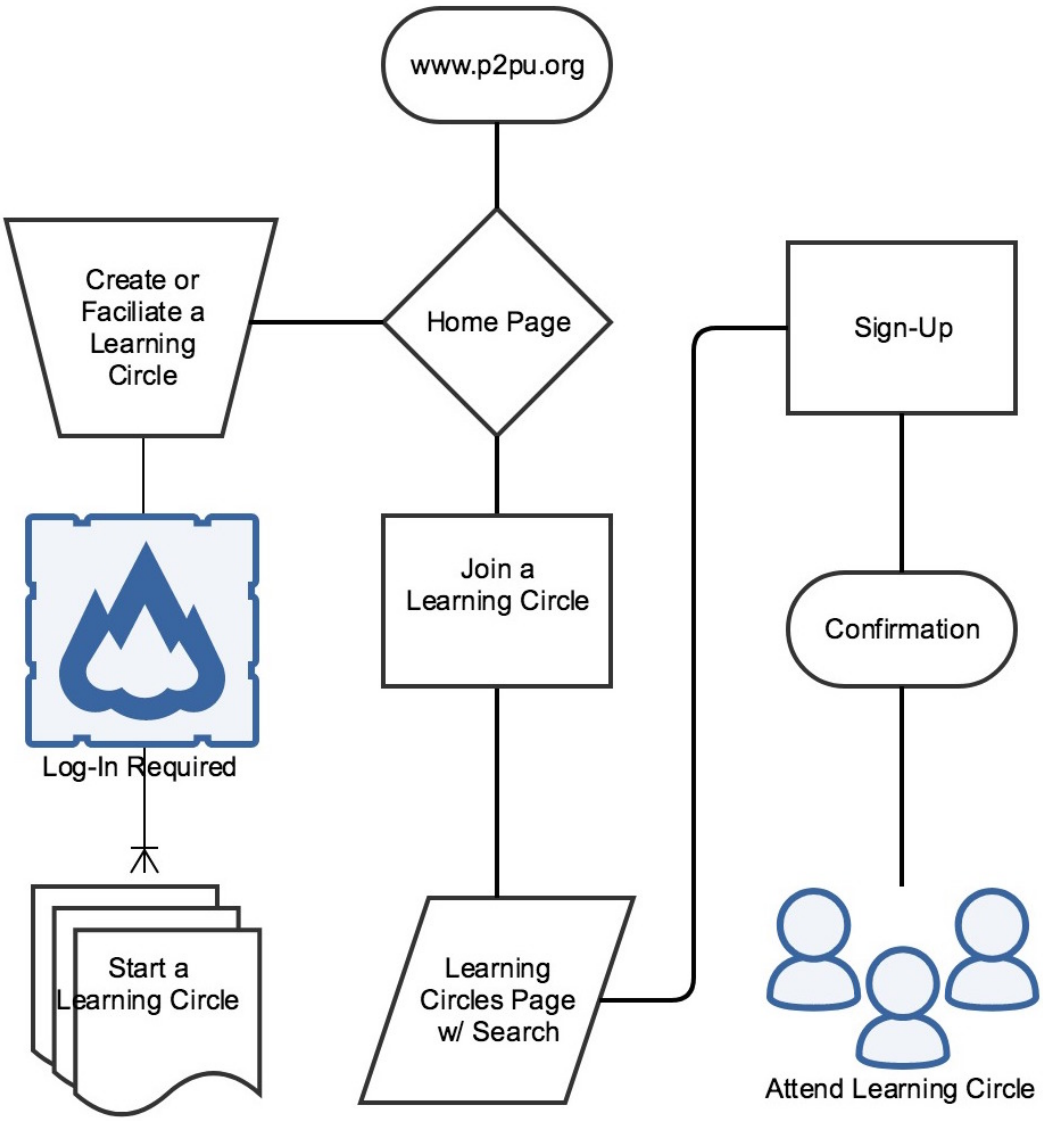

Figure 4.13: P2PU Process Map (P2PU, 2017)

The home page (Figure 4.14) is clear and uncluttered and provides the learner with two options for engagement: to either create and facilitate or join a learning circle.

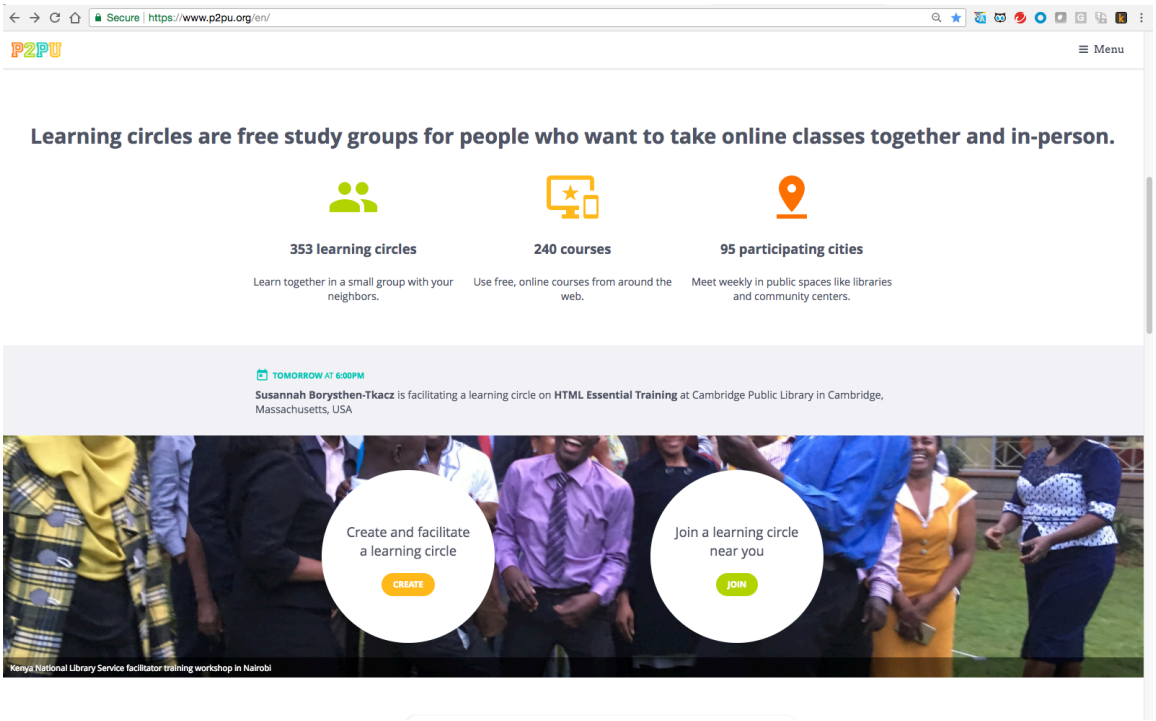

Figure 4.14: P2PU Home Page (P2PU, 2017)

I find it intriguing that the first option presented is to create a learning circle. The effect is to encourage me to see myself as a potential contributor to the collective effort rather than as a passive participant in the process. I am here to focus on the learning experience, but I am curious as to the process for creating a learning circle, so I click that option first, which brings me to the only firewall I encounter on this site, as a log-in is required to create a learning circle. Although I have an account, my main focus is on the experience as a learner in an existing learning circle, so I forgo the rest of the learning circle creation process, which involves entering standard personal information and generating a

password. Turning to the, "Join a Learning Circle Near You" option, I am surprised to find that no such log-in requirement exists in order to search for learning circles. The effect is one of total openness and inclusion, as there is no tension around data collection or commitment.

The Learning Circles page (Figure 4.15) includes some featured courses, and the process for signing up for any of these is as simple as clicking the "Sign Up" button and entering my contact information and reason for joining the learning circle in question.

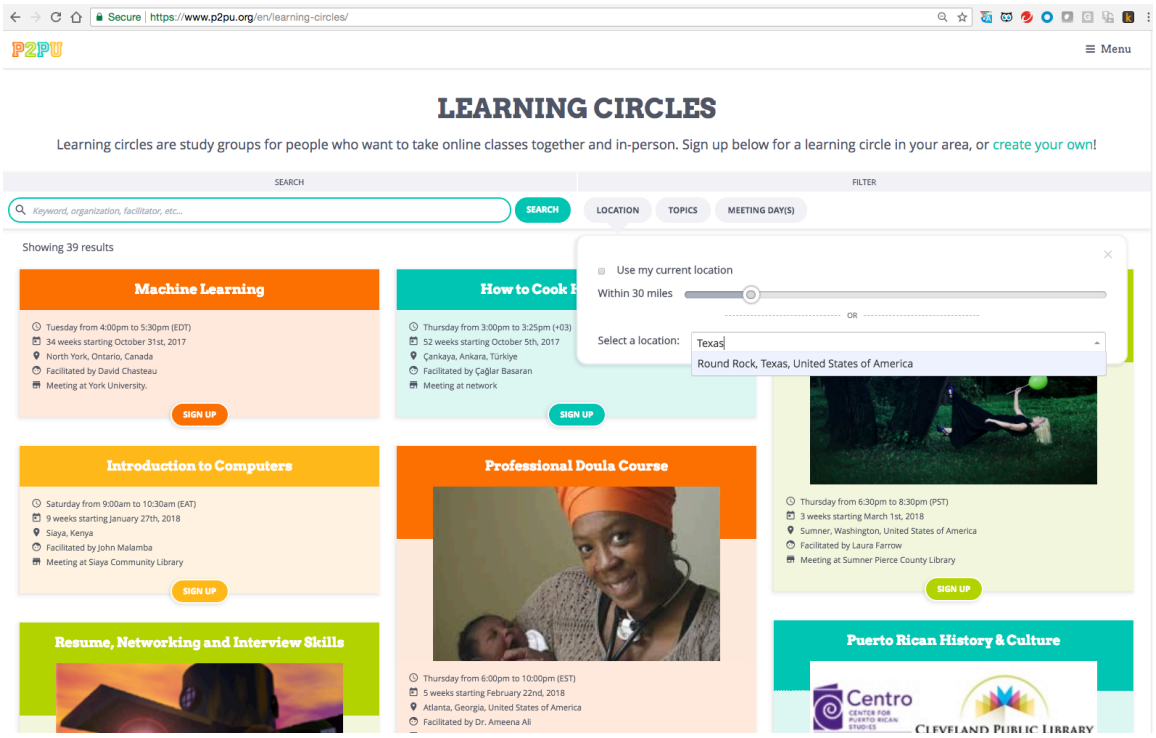

Figure 4.15: Learning Circles Page (P2PU, 2017)

Since none of the featured courses are in my geographical area, I turn to the search bar, which allows the learner to filter the search by location, topic, or meeting day(s). Searching by location, I am initially disappointed to see that there are not any learning

circles active in Austin. Expanding my search to include the entire state of Texas, wherein I reside, brings up only one option: just north of Austin, in neighboring Round Rock, which is the largest of the Austin-area suburbs and home to international computer giant Dell. As disappointed as I am that there aren't any learning circles in Austin, especially considering Austin's size and status as a technology- and education-rich city, I am equally surprised to see that this there is only one active learning circle in a state as large and populous as Texas. Selecting the single available option in Round Rock, I find that only option in the entire state of Texas is a learning circle called, "High School Equivalency -- Science and Beyond" (Figure 4.16).

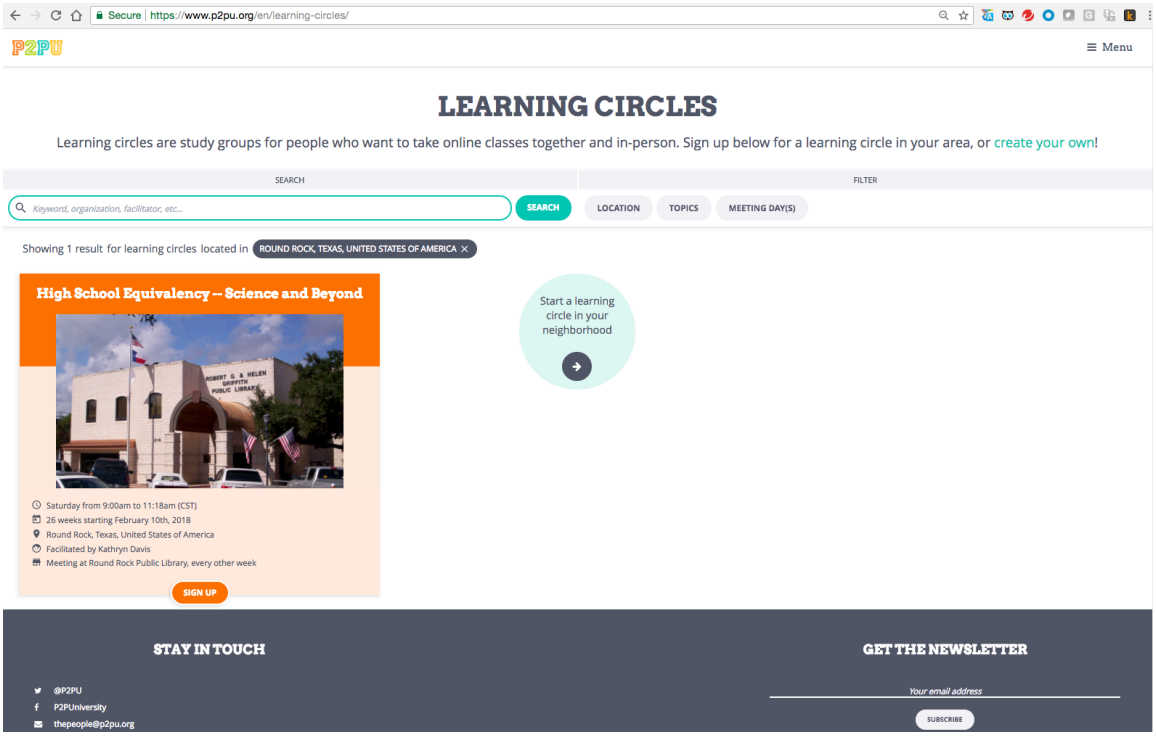

Figure 4.16: P2PU Search Results - Texas (P2PU, 2017)

The location and meeting details are featured prominently in the search result, along with the now-familiar Sign Up button, which I click. Although I wasn't necessarily looking for a High School Equivalency group, but with no other options, I decide that I will attend to get a feel for the structure and approach of these learning circles. Entering my basic contact information and rationale for joining (I select, "Personal Interest"), I am redirected to a sign-up confirmation page, which notifies me of the location and timing of the next meeting (Figure 4.17).

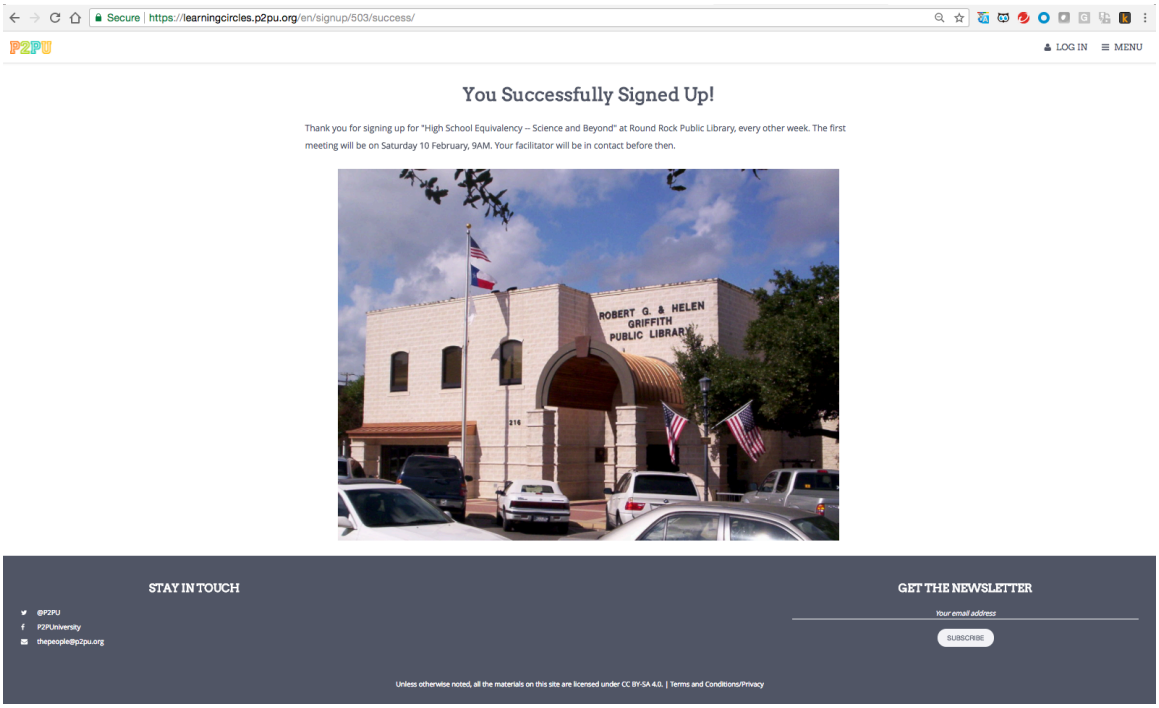

Figure 4.17: P2PU Sign-Up Confirmation Page (P2PU, 2017)

Although the screen indicates I would be, I was never contacted by the leader of the Learning Circle, but this is likely because P2PU was a strictly secondary mode of

formation for this particular learning experience[1], although I did receive several automated text message reminders for subsequent meetings of the same group. While automation of messaging points to an advantage of the centralized network of learning circles, the absence of personal contact creates a point of disconnection between the virtual representation of the learning experience on the P2PU site and the in-person experience itself.

This virtual representation of learning through engagement with P2PU lies at the heart of the main page, where seemingly random phrases appear on the screen, promising that the user can do almost anything from "start writing fiction" to "master public speaking" "in your neighborhood, for free." The randomized effect of the phrases that populate before the closing phrase, "in your neighborhood, for free" creates the impression that the learning options on offer are vast and locally available. Scrolling down the main page brings up the site's central organizing conceit: "Learning circles are free study groups for people who want to take online classes together and in-person,"

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[1]When visiting this particular learning circle, I learn that its leader conducts a long-standing "citizenship class" at her local First Baptist Church and that the learning circle, if it may be called that, is a recent extension of that class to help some of her adult students gain the High School Equivalency they need to gain United States citizenship. The organizer only listed it on P2PU on a whim after she came across P2PU at a learning exposition. I appear to be the only person to have ever contacted her from the P2PU listing. The class itself is mainly focused on second-language acquisition as a foundation for more advanced High School Equivalency work further down the line. It's important to note that it's structured as a class, with her as the teacher and the other participants as students, and not according to the learning circle structure advertised on P2PU.

along with statistics that reflect the circles on offer: 364 learning circles and 245 courses (which are, incidentally, leveraged from other sites by learning circle members and not original to the site itself) in 95 participating cities. Continuing down the page, multiple sliding banners tout the learning circles taking place around the world, complete with scheduled times. Next comes the aforementioned option to either create or join a learning circle, followed by another sliding banner featuring testimonials from P2PU users. These multiple sliding banners combine with the introductory text promise to learn almost anything "in your neighborhood, for free" (P2PU, 2017) to establish a feeling of great variety and possibility.

This sense of proliferative possibility is fed by the lack of content residing on the site itself, which establishes a sense of agency on behalf of the learner her- or himself. Many others seem to be doing it and the options are incredibly open, but nowhere is it promised that learning will occur as a result of engagement with the site itself. Rather, the onus is on the user to create learning circles where none may yet exist. Yes, you can learn anything you want in your neighborhood, for free, but it may be necessary for you to create that opportunity yourself, as the site itself is a networked hub and most certainly not a content repository. Notably, after the last sliding testimonial banner on the main page, a static banner proclaims that "Learning doesn't have to end at school: P2PU supports equitable, social learning experiences beyond institutional walls" (P2PU, 2017). This explicit positioning outside of schooling is unique amongst the sites within this research set. As P2PU doesn't feature any designated learning paths, merely opportunities to connect and learn alongside others on topics determined by users themselves, the site is twice-removed from typical notions of education: both by its underlying structure as an independent network for connection and its guiding motif of extrascholastic learning

circles. To the extent that institutions are present at all, they are merely hosts for learning circles; learning lives in the circles themselves and not in any single person or institution.

edX

I feel it's important to engage with a MOOC because of the prominence they enjoy, especially amongst institutions of higher learning. I choose to engage with edX because of the range of supporting HE institutions it counts as members.

The process of enrolling in a course and completing a learning module is outlined below in Figure 4.18:

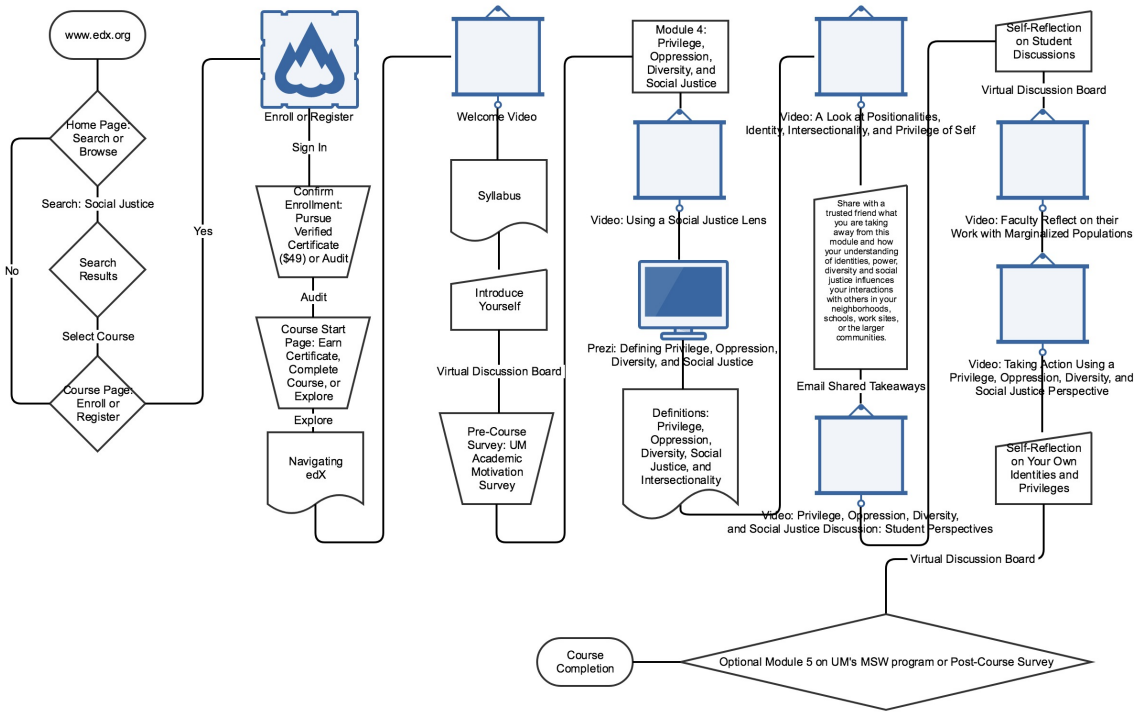

Figure 4.18: edX Enrollment and Learning Process (edX, 2017)

I decide to compare experiences with edX and Wikiversity by searching for similar learning opportunities outside of the dominant STEM focus described earlier in this chapter section. This also helps to streamline the voluminous results from each, as the topic for which I search, of high interest to critical pedagogues, is one that is sadly under-represented in the course offerings of both sites: Social Justice.

I begin by visiting the edX home page, which may be seen in Figure 4.19.

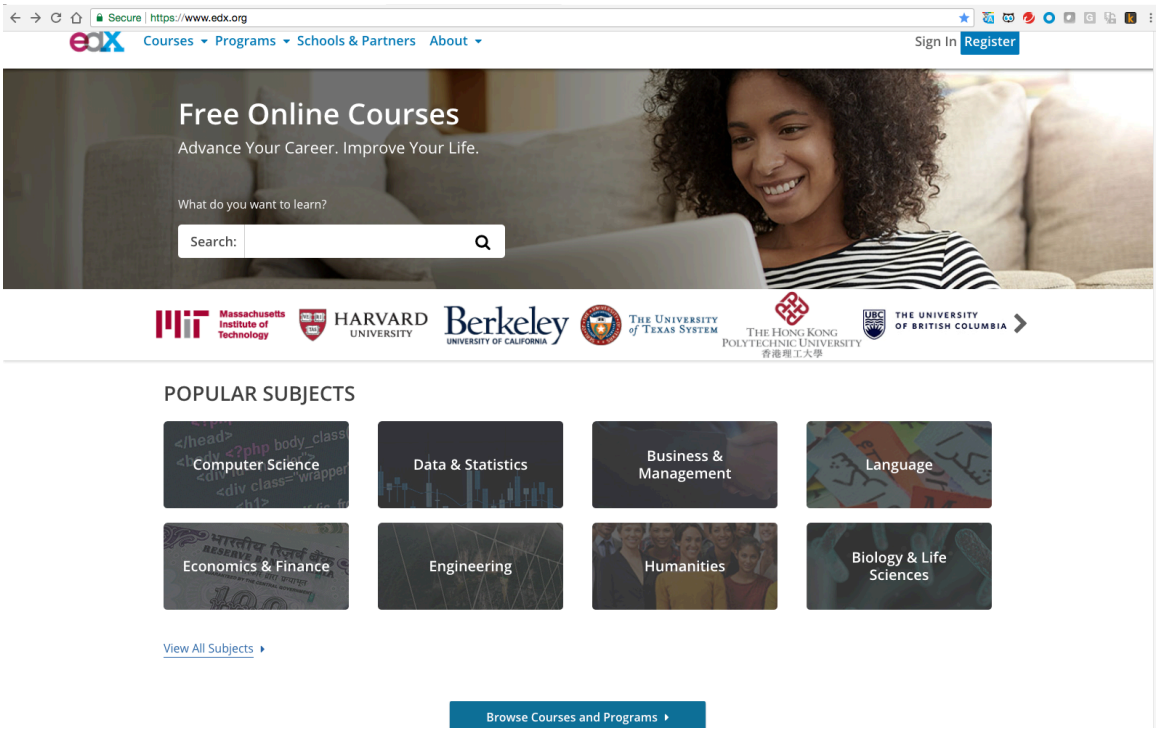

Figure 4.19: edX Home Page (edX, 2017)

Like all sites in this focused research subset, a helpful search bar is featured on the home page, which means that anyone can search for a course without having to go on-record and log-in or enroll. Like the other sites, as well, certain featured courses are highlighted on that home page, as well. I take advantage of the prominent search field contained here on the home page and enter, "social justice" into the search bar. This brings me to a

Search Results page, as seen below in Figure 4.20:

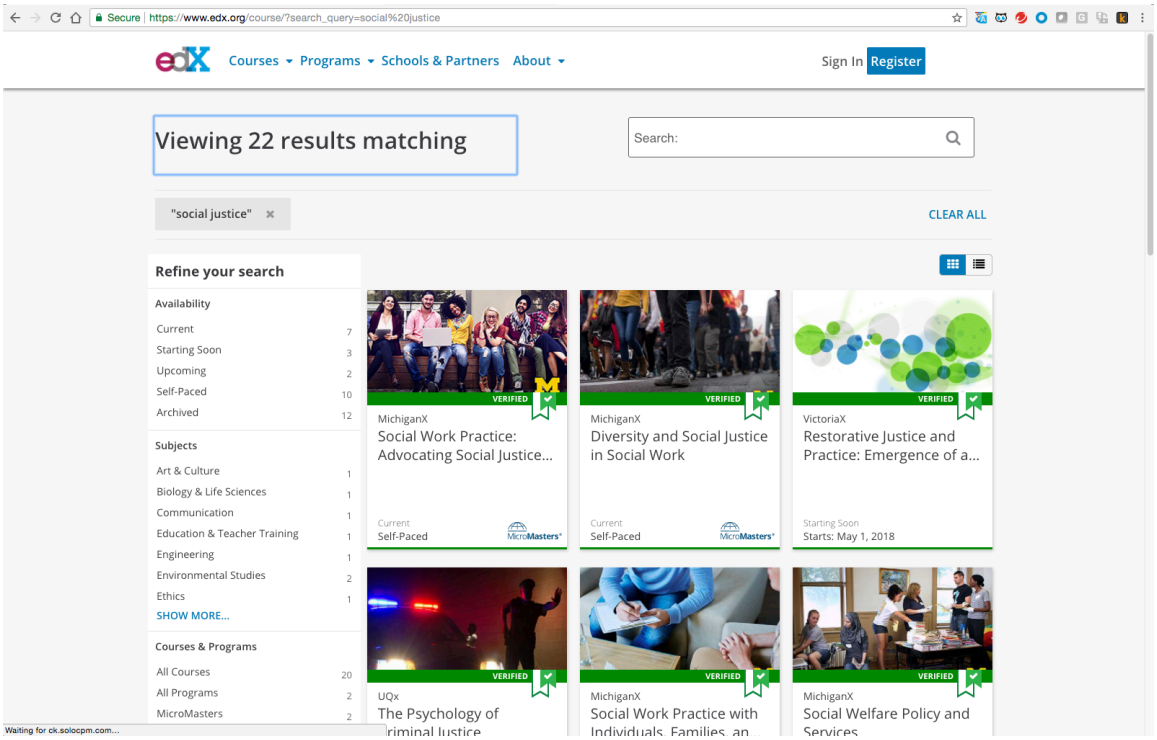

Figure 4.20: edX Search Results for Social Justice (edX, 2017)

I am drawn to the first topic in the results list, "Social Work Practice: Advocating Social Justice and Change." The focus on advocacy appeals to me, and I have to admit that I am intrigued by the course's "verified" status and prominent University of Michigan branding. It is also helpful to the current research effort that this particular course is self-paced, as opposed to synchronous, as many such MOOCs are. Eager to see what's on offer, I click the course block to begin the enrollment process.

This brings up the course page (Figure 4.21), which offers a summary of the course itself, including the learning objectives, instructor information, and course logistics.

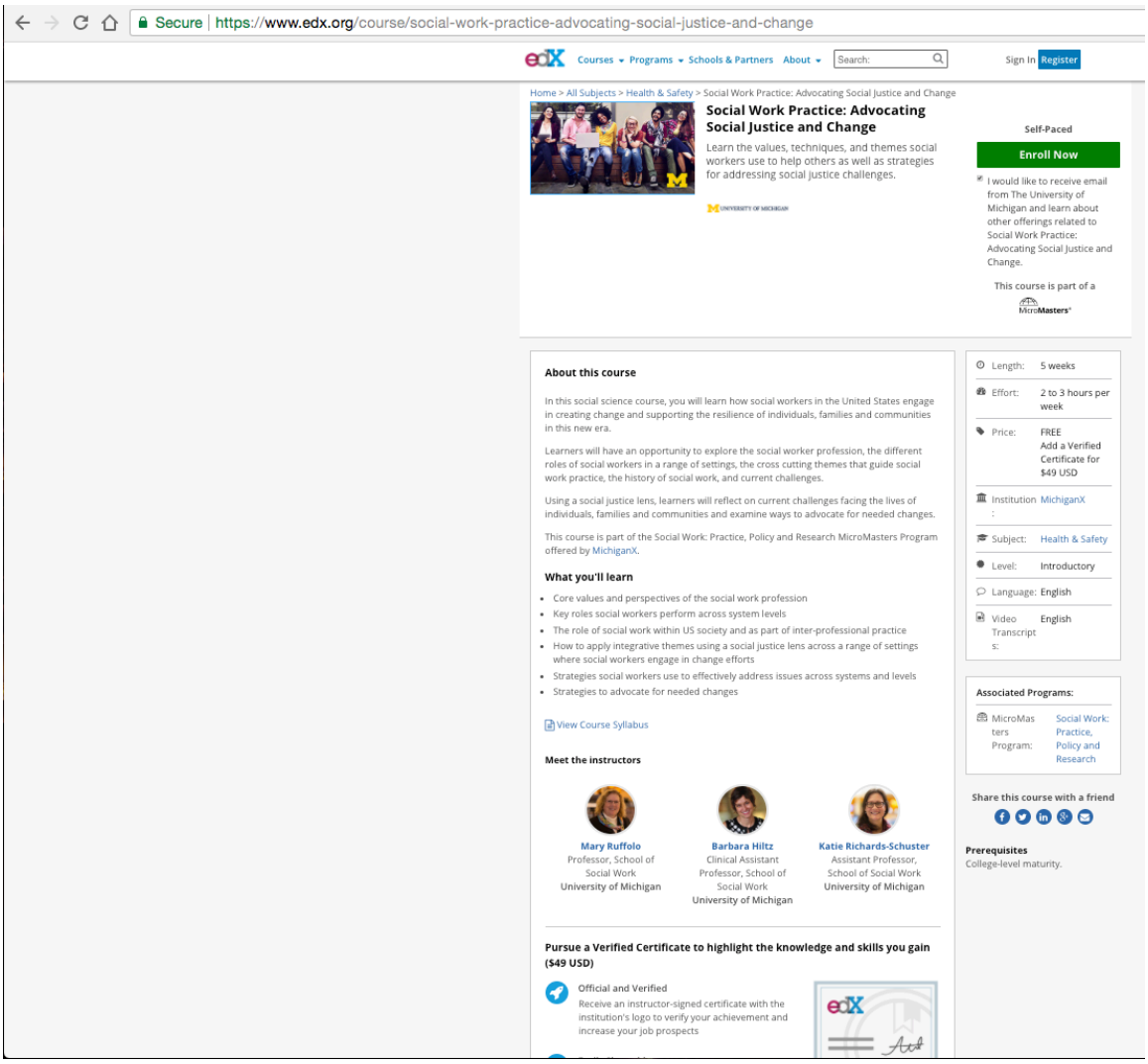

Figure 4.21: Course Page: Social Work Practice: Advocating Social Justice and Change (edX, 2017)

From the course page, three things stand out to me right away: the offer to pursue a Verified Certificate for a $49.00 fee, the request to be included in University of Michigan communications, and the course prerequisite of "College-level maturity." Although I am

not tempted to purse a Verified Certificate, the offer gives the course a sense of extrinsic value, as if I am getting a $49.00 value for free if I just forgo the fee. It also forces me to locate my motivation for taking this course: is it extrinsic or intrinsic? I opt-in for the communications, which proves helpful later when I receive an email reminding me that I have additional modules to complete. Again, this provides an extrinsic motivator, albeit at the expense of some level of personal privacy in the form of an email distribution list. I believe that I meet the criterion of "College-level maturity," but this reminds me that these and other MOOCs are targeted at those who have some familiarity with HE structures.

Clicking the "Enroll Now" button, I come up against edX's firewall, which requires me to log-in or register before enrollment. I registered with edX some time ago and recall the process as being similar to registrations with other sites in the research set, namely entering my name, contact information, and relevant non-commercial personal data. Once I log in, I am able to enroll, which brings up an enrollment confirmation screen. Two options for course completion are offered: the option to pursue a verified certificate is repeated, but at this point it strikes me as more than a bit commercial in its redundancy. For the purposes of this microstudy, I opt to audit the course.

Clicking the "Audit This Course" button brings up the Course Start Page (Figure 4.22).

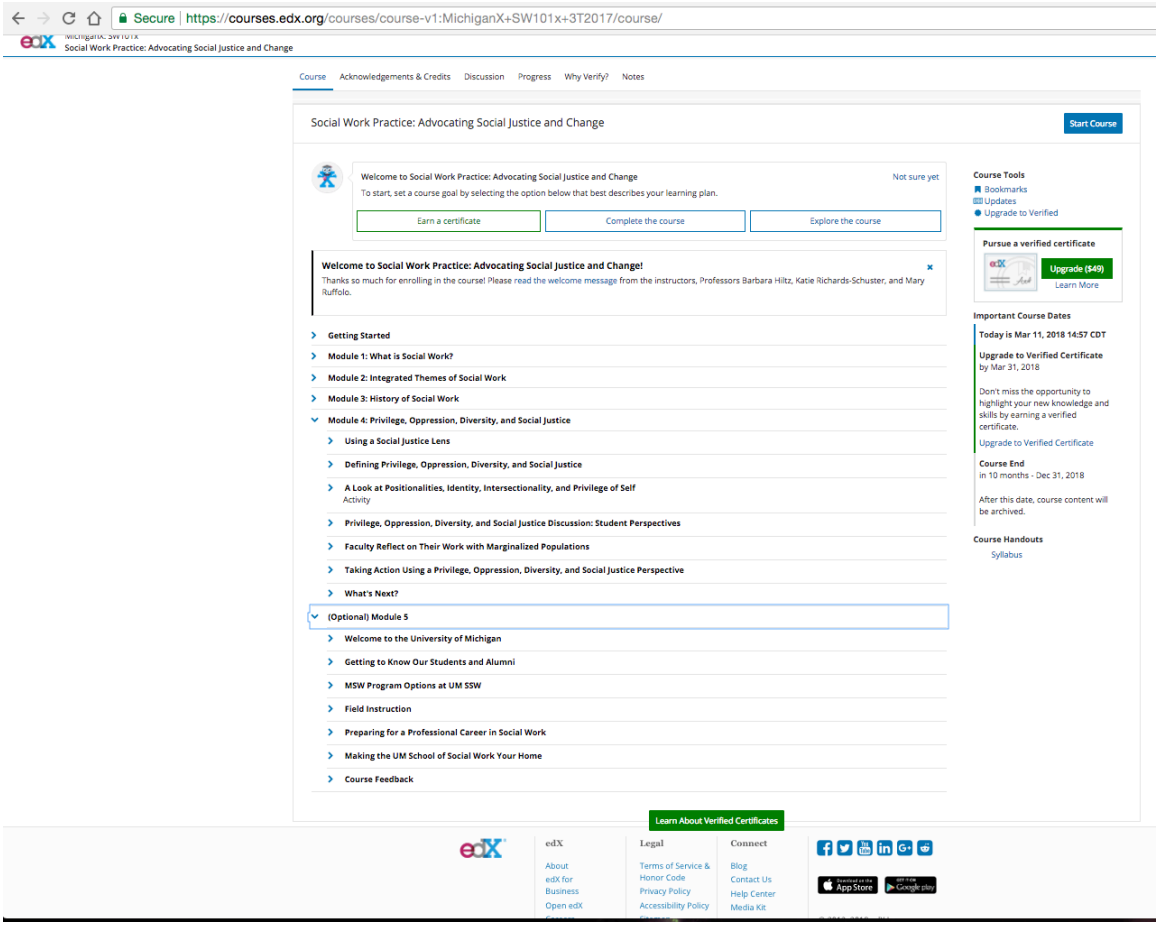

Figure 4.22: edX Course Start Page (edX, 2017)

The first option on the Course Start Page again offers the option to "Earn a certificate," as well as "Complete the course," which sets up a linear progression through the specified sequence of Modules, or "Explore the Course," which allows the learner to skip around and engage topics of interest at will. I note that the option to pay $49.00 to earn a certificate isn't just repeated on this page, it's repeated three times on this page alone. Once in the aforementioned set of initial options, again in the sidebar, and yet again at the bottom in a recurring button that is repeated on every page of the course. While this

redundancy makes the course feel commercialized, I appreciate having the option to forgo either certification or a linear course progression. As I am not particularly interested in learning about either the field of social work (Modules 1-3) or in sitting through a module-length commercial for the University of Michigan's Master's in Social Work (MSW) program (Module 5), I opt to focus on Module 4, which aligns with my original interest in social justice while providing an understanding of the course's structure and functionality. I find it both enjoyable and useful to focus solely on my own interests in taking this course. In terms of functionality, the first screen I arrive at provides a brief tutorial to navigating edX (Figure 4.23).

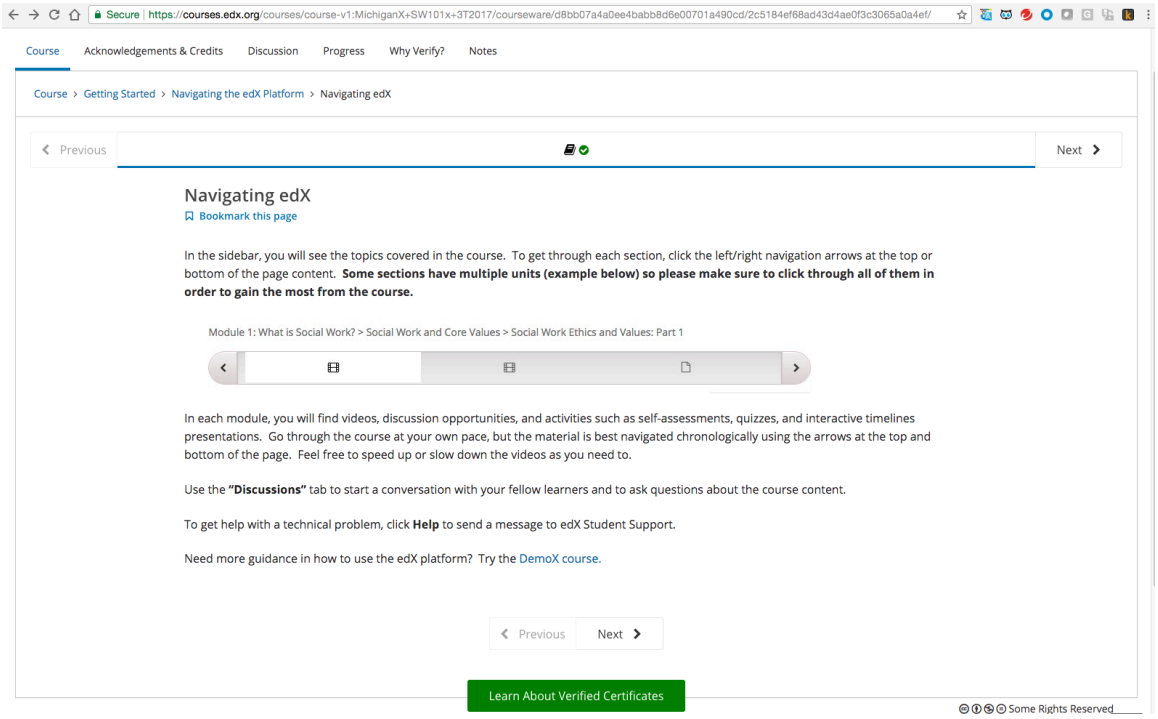

Figure 4.23: Navigating edX (edX, 2017)

From here, the course proceeds in a linear fashion using the lesson-specific navigation bar at the top of the player. Module 4 contains at least one of each of the modalities

mentioned in the Navigation description: videos, discussion opportunities, and, as an "activity," a clickable, embedded Prezi (Figure 4.24), which, after a brief video on "Using a Social Justice Lens," makes up the second "lesson" in this Module.

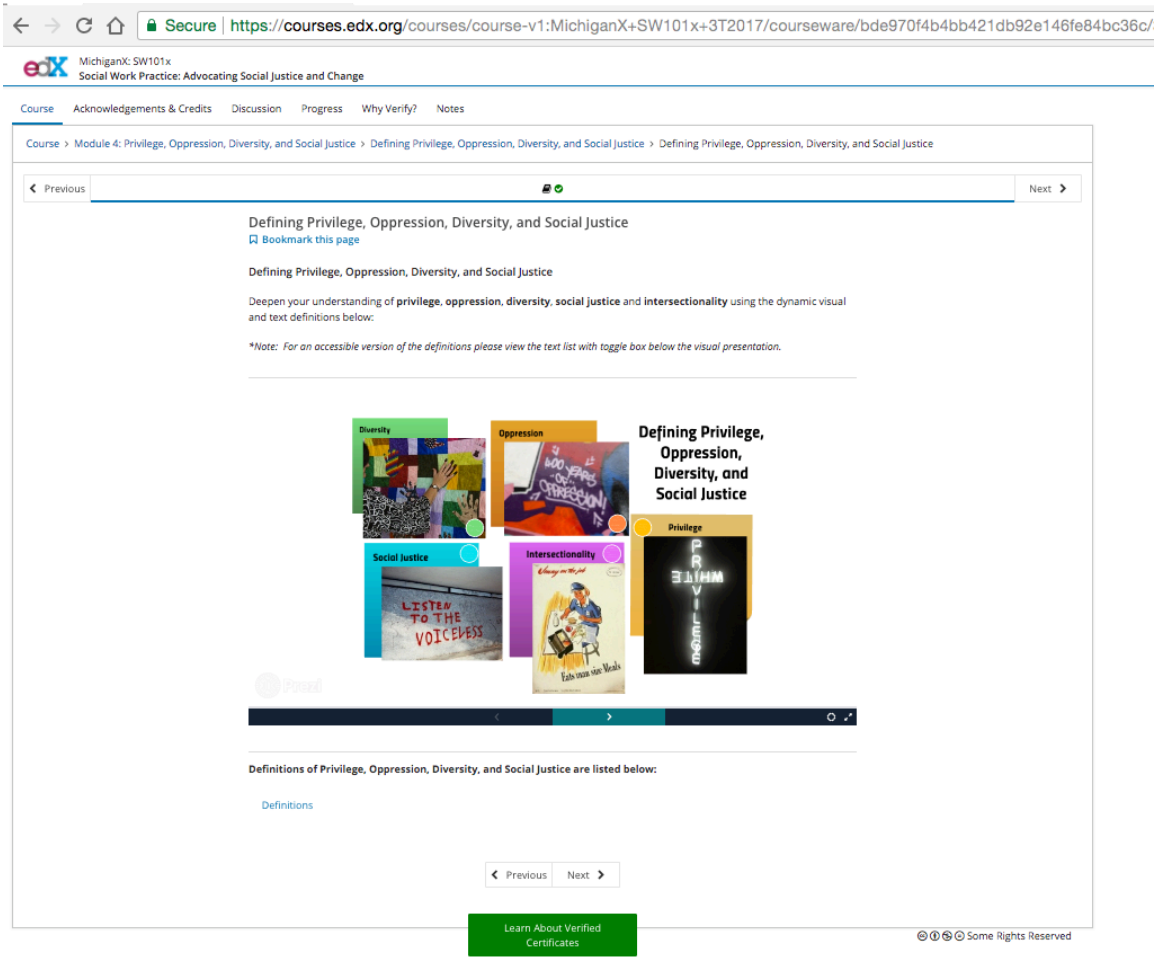

Figure 4.24: Embedded Prezi - Defining Privilege, Oppression, Diversity, and Social Justice (edX, 2017)

I find the content of this Prezi to be thoughtful and well-conceived, but the notion that this is interactive is a bit of a stretch, as I'm only clicking through topics, albeit in the novel non-linear presentation style for which Prezi is known. There is no connection

between my interactions with the player and the information being presented, which fails to engage my own kinesthetic learning style. It's very easy to click around the Prezi and not really engage the content.

An even lesser degree of interaction is required for the multiple videos that make up the majority of this Module's lessons. About half of the videos do ask for some sort of engagement after the video concludes, however. For example, after the aforementioned Prezi, there is a short video lecture: "A Look at Positionalities, Identity, Intersectionality, and Privilege of Self" (Figure 4.25).

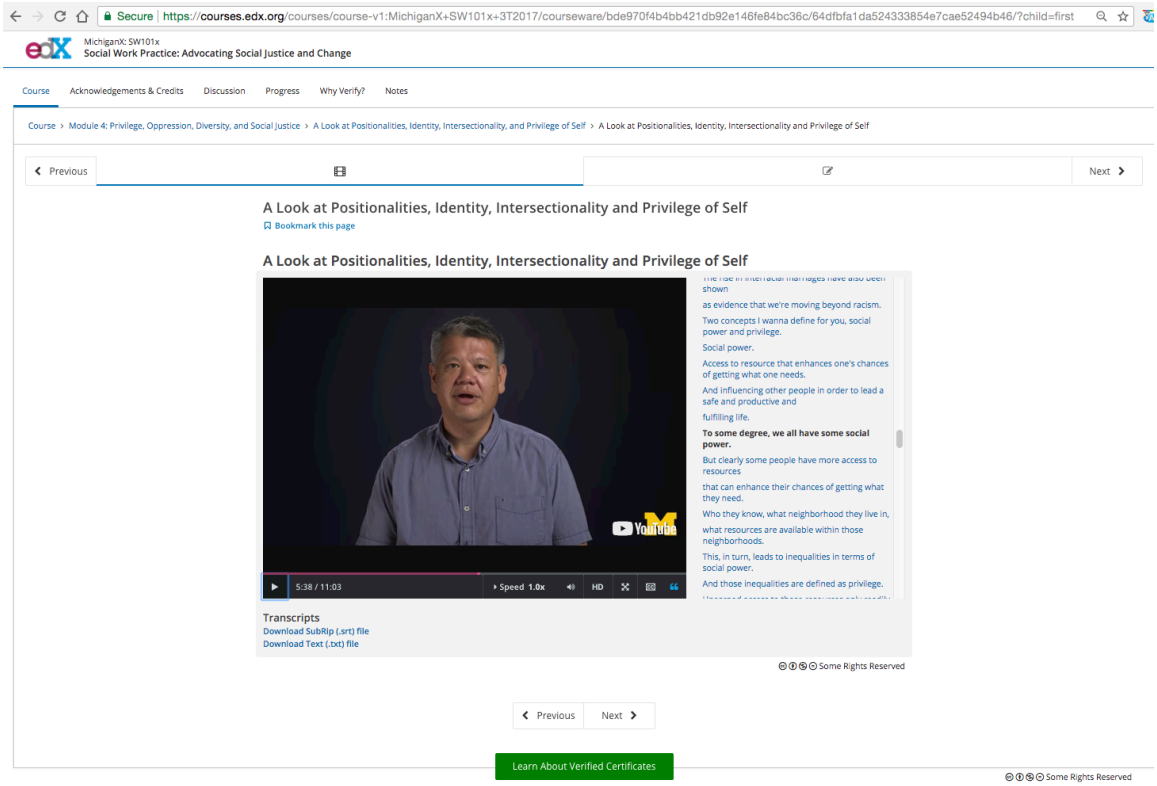

Figure 4.25: A Look at Positionalities, Identity, Intersectionality, and Privilege of Self (edX, 2017)

This video mainly consists of a University of Michigan faculty member talking about these concepts at a very high level and interspersing his lecture with supporting slides and some examples of racist and privileged speech. After the video, learners are encouraged to "[s]hare with a trusted friend what you are taking away from this module and how your understanding of identities, power, diversity and social justice influences your interactions with others in your neighborhoods, schools, work sites, or the larger communities" (Figure 4.26).

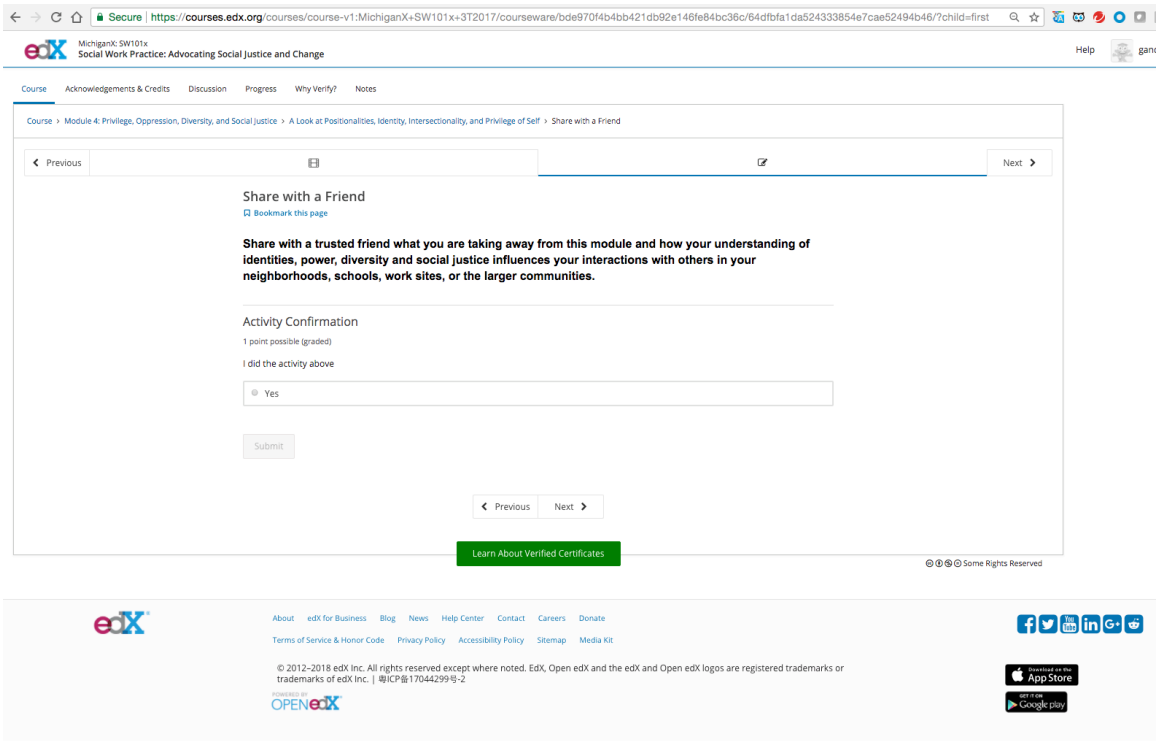

Figure 4.26: edX Activity - Share with a Friend

There is no preferred mode of sharing listed, so I email an old friend who is a longstanding activist in the San Francisco Bay Area with a pocket digest of my takeaways and planned applications from this module. After that, I click the "Yes" radial

button to indicate that I completed the activity. All of the activities I've seen so far in this module are administered on the honor system.

This honor system of activity completion recurs in the next lesson, which consists of a video, this time of students talking about their experiences (Figure 4.27), followed by the direction to share a self-reflection in the embedded discussion board (Figure 4.28).

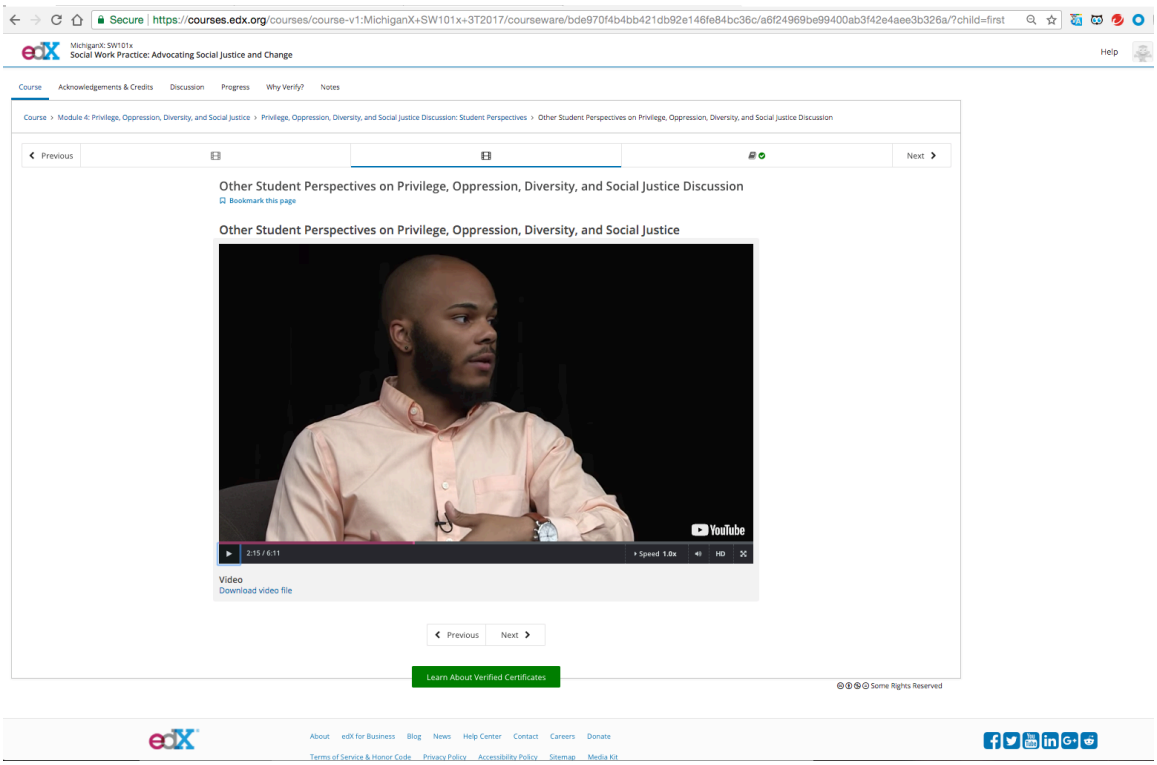

Figure 4.27: Student Perspectives on Privilege, Oppression, Diversity, and Social Justice (edX, 2017)

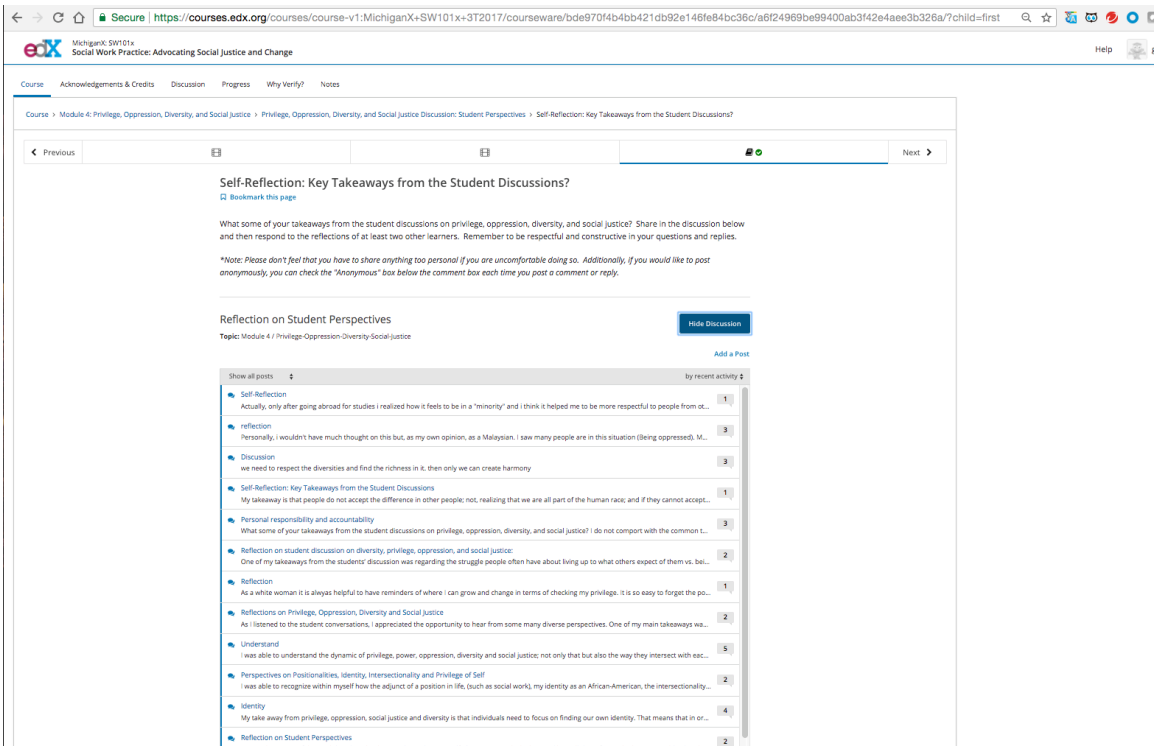

Figure 4.28: Embedded Discussion Board (edX, 2017)

Even though I am not able to see any feedback or responses to my own contributions, as this is a self-paced course and many of the earlier participants are no longer engaged, it is instructive and interesting to read my fellow "classmates'" responses. Presumably, if this were a synchronous MOOC, the conversation would be much richer. I can't help but wonder if this kind of activity is appropriate for a self-paced course?

One challenge presented by this structure of watching videos and then posting afterward to a discussion board is that it doesn't really allow for appropriate contextualization of the rich and varied experiences voiced by the students themselves in the videos. For example, several students speak of their personal experiences of what might be considered stereotype threat (Steele & Aronson, 1995), yet this concept goes unexplicated and unexplored, both in the discussion board and the course, either critically

or uncritically. Because the discussion board is centered on course participants' conversational responses, the discussion is limited to the conceptual horizons of those participants and thus misses out on the engagement of a more theoretically sophisticated interlocutor. The vague question that frames the discussion -- "What [*sic*] some of your takeaways from the student discussions on privilege, oppression, diversity, and social justice?" -- is broad enough to allow for multiple points of reflective entry, but it is also so broad as to allow participants to respond on a relatively superficial level without the benefit of an experienced pedagogue's challenge. The lack of depth and sophistication in the discussion may well be a function of the course's introductory approach, but the interactive structure, such as it is, does little to push participants to go any deeper than their first reflective attempt. While the students' stories are thought-provoking and interesting, the course's overall lack of social and historical context renders their narratives as mere representations (A. L. Brown & Brown, 2010) of oppression and privilege which work to preclude critical interpretations on the part of course participants.

After completing two more videos and one more virtual discussion contribution, I am given the option of completing Module 5, which is about the University of Michigan's MSW program, or completing the course. I go with the latter, and the extended plug for the brick-and-mortar MSW program feels like an imposition on and degradation of the learning experience in which I am engaged.

Wikiversity

As noted previously, Wikiversity (2017) differs from the other wiki featured in this study in that it is learner-focused, whereas WikiEducator (2016) is targeted at educators. Like its Wikimedia Commons stablemate, Wikipedia (2017), the manner for getting to an entry -- in this case, structured as a lesson of sorts -- is relatively easy, but

the organization of that entry gets progressively more complex as a myriad of hyperlinks are deployed to flesh out and extend the basic, contextualized information within the lesson itself (Figure 4.29).

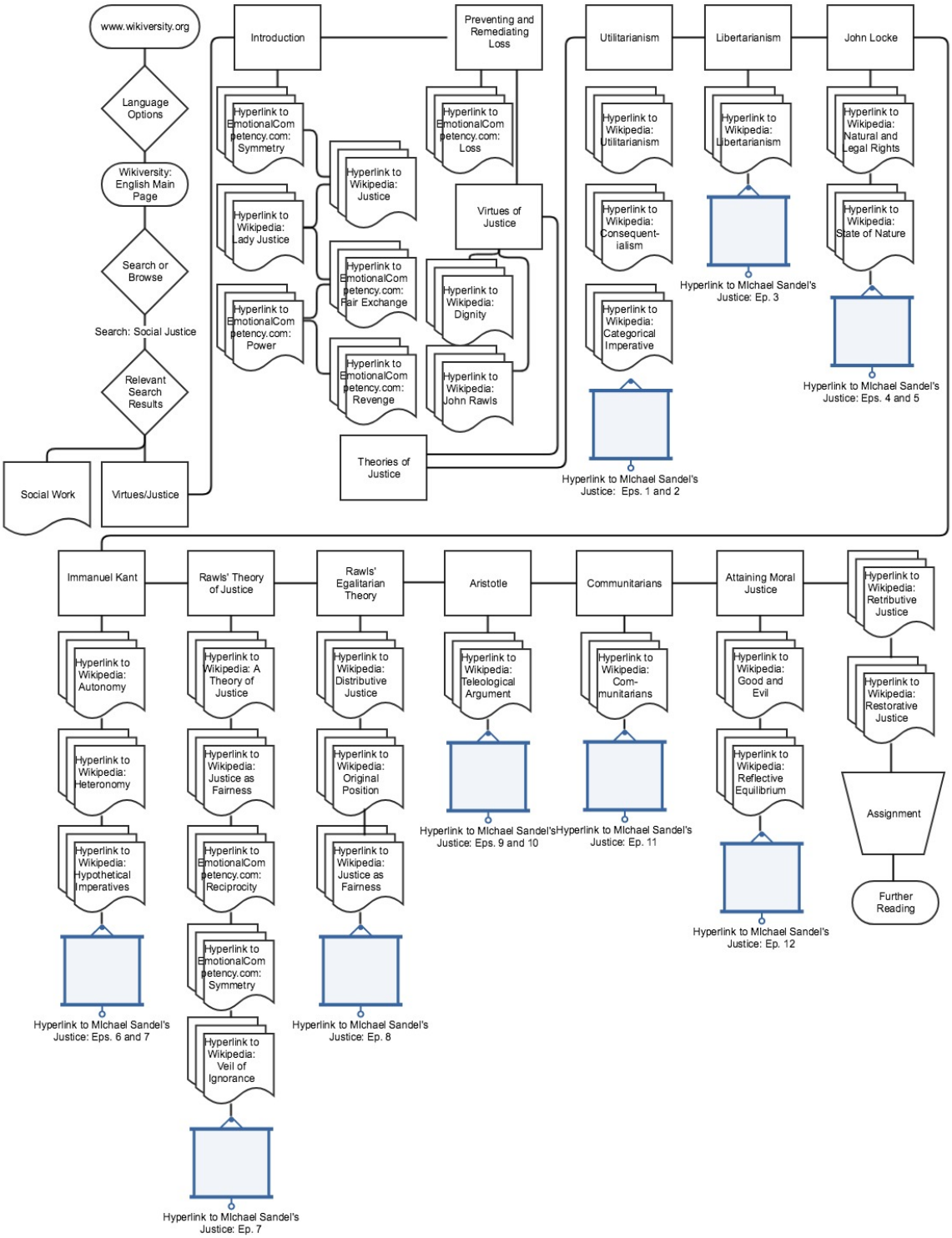

Figure 4.29: Wikiversity Lesson Structure (Wikiversity, 2017)

To get to the lessons, I begin at the Wikiversity main page. The first thing I notice is the number of languages on offer, with 10 listed prominently and many others available. The German, English, and French pages each feature over 10,000 lessons, while the Arabic, Czech, Spanish, Italian, Portuguese, and Russian pages each feature over 1000 lessons. You can search from this main page or continue to the appropriate language-specific main page (Figure 4.30)

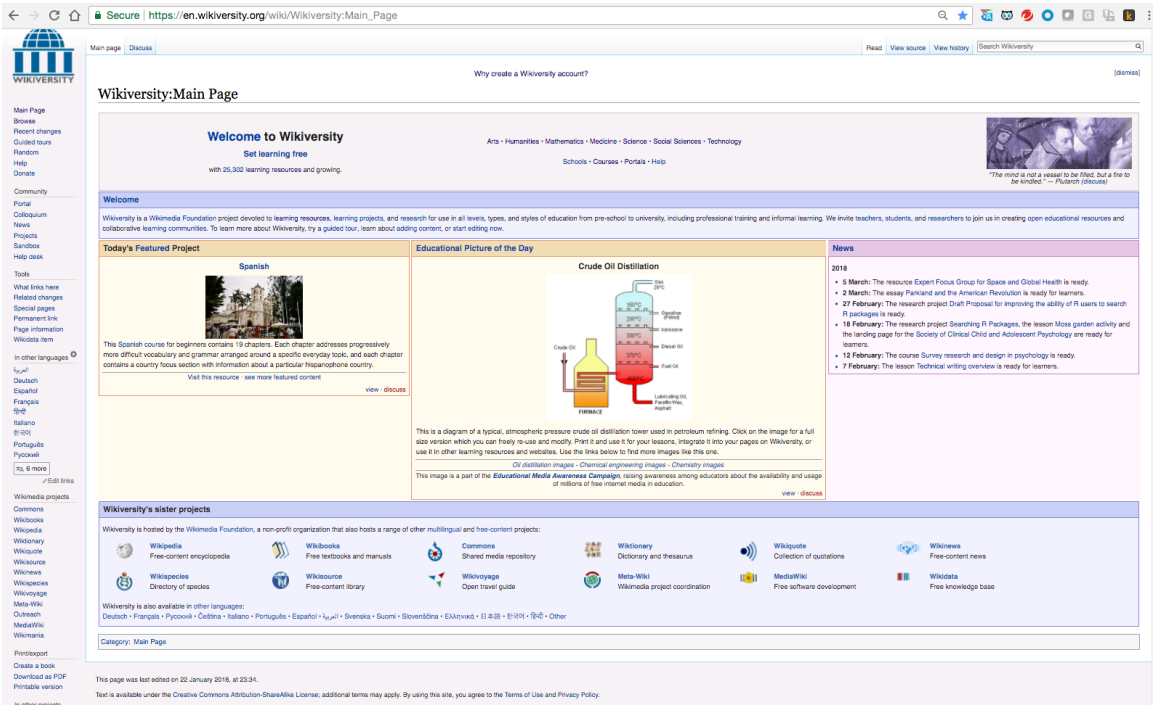

Figure 4.30: Wikiversity Main Page - English Edition (Wikiversity, 2017)

The user interface for Wikiversity is somewhat crowded and difficult to navigate, but in this instance helps to illustrate how visual elements, such as images and diagrams may be used to supplement learning, which is not apparent in the entry I end up visiting. After browsing through the contents of the main page, I am able to locate the search bar up in the upper right-hand corner of the page. To enable comparison to edX, I search for

"social justice." Out of the results of that search, I am able to locate two possible analogs for the course I recently took on edX: "Social Work" and "Virtues/Justice." Clicking each brings me to the appropriate page.

The Social Work page (Figure 4.31) is woefully inadequate to my personal needs as a learner, as it consists solely of a single page of text, with no hyperlinks or assignments.

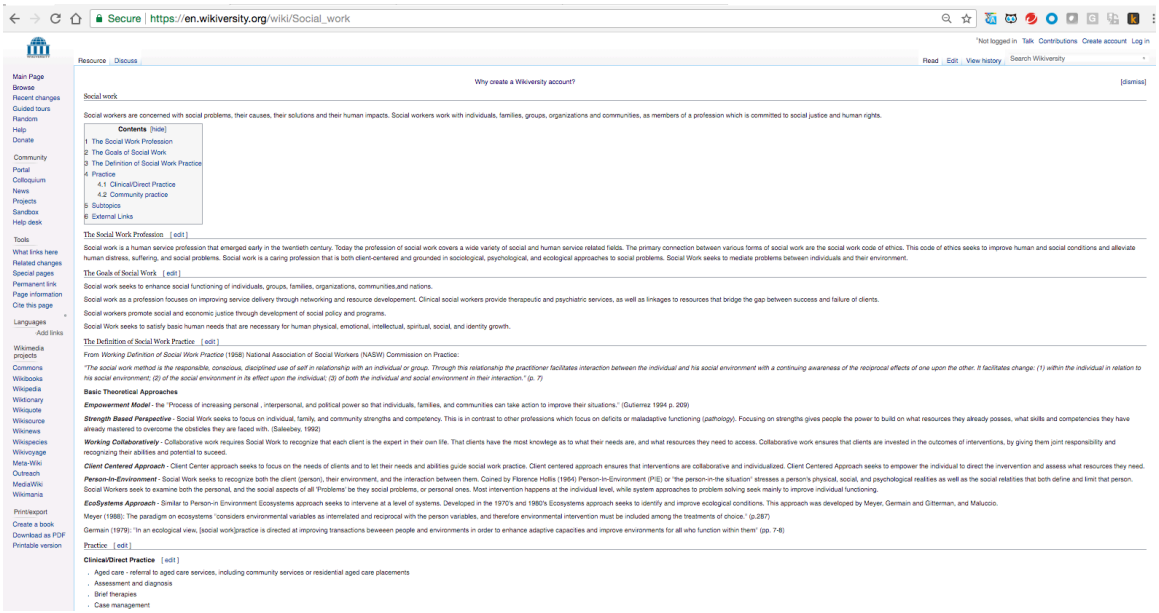

Figure 4.31: Wikiversity Entry: Social Work (Wikiversity, 2017)

I consider this page a dead end and cross my fingers that "Virtues/Justice" (Figure 4.32) will have more on offer.

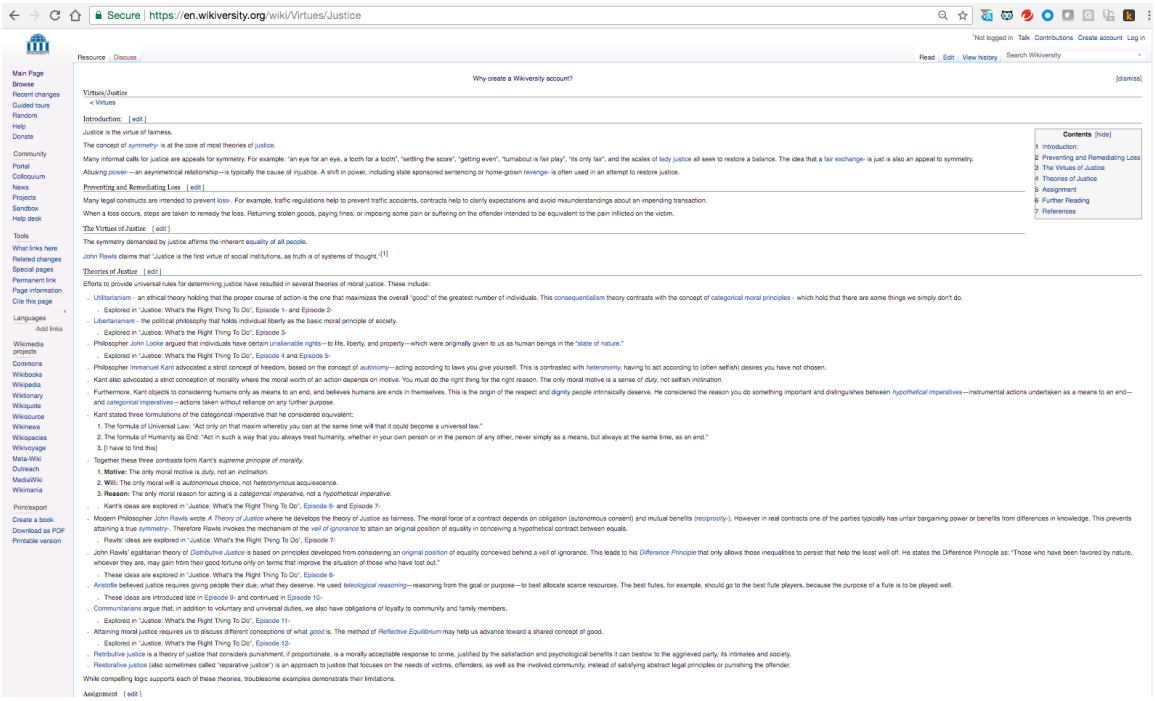

Figure 4.32: Wikiversity Entry: Virtues/Justice (Wikiversity, 2017)

As I'd hoped, there's a lot more to work with the Virtues/Justice page, primarily in the form of hyperlinks, which allow me to dig deeper into specific topics or look up unfamiliar concepts. The main difference between Wikipedia and Wikiversity as I see it is that whereas Wikipedia uses hyperlinks for textual support and extension related to a single concept, Wikiversity expands dramatically on a given concept to allow learning and exploration of related ideas along the lines of a traditional curriculum and adds both a narrative framework and, at least in the case of "Virtues/Justice," a simple assignment set to help ground the topic in the learner's internal schema.

The Introduction sets the basic parameters of the concept and features an evenly mixed set of hyperlinks, half of which refer to entries on Wikipedia and the other half of which link to an external site: EmotionalCompetency.com (2015). While EmotionalCompetency looks like a solid informational site, I can't help but wonder what will happen if and when that external site goes down, especially since it hasn't been updated since 2015. The next two sections, "Preventing and Remediating Loss" and "Virtues of Justice" repeat this blended approach, combining the topical specificity of Emotional Competence with the encyclopedic breadth and depth of Wikipedia.

The next section, "Theories of Justice," forms the bulk of the course entry. In this section, a different pattern asserts itself: Component subtopics are linked together by an explanatory narrative that frames supporting hyperlinks to Wikipedia entries, and each subtopic is capped off with a related video lecture from the series *Harvard University's Justice with Michael Sandel* (2017). The lectures are highly informative and entertaining, if somewhat unusual in terms of the auditorium-sized student crowds gathered to hear Michael Sandel hold court. Moreover, this recurring structure, which repeats for nine subtopics of highly philosophical nature, makes it easier to settle into the learning once the pattern is discerned. The connections between the videos and the subtopics are sometimes tenuous, however, which causes me to skip some if I can't discern the connection between the lesson narrative and the topical capstone video.

As a textual learner, I personally find the hyperlinked approach freeing, as it allows me to cruise and glide through the contents, digging deeper when I need to and glossing over that of which I am already aware or do not find particularly interesting. The lesson closes with a perfunctory assignment consisting of four questions:

> Part 1: Study each of the theories of justice listed above; Part 2: Which theory comes closest to describing your own intuitive sense of justice? Why? Part 3: Choose a case from this list of thought provoking cases or some other documented and difficult case to study. Apply the theory of justice you identified in part 2 to this case. What outcome would that theory of justice arrive at? Is that the outcome the courts arrived at? Comment on your intuitive sense of justice in this case and how that agrees with or differs from the theoretical and actual outcomes. Part 4: What mechanisms, if any, work to align legal justice with moral justice? (Wikiversity, 2017, https://en.wikiversity.org/wiki/Virtues/Justice)

The questions are insightful, but it feels odd to answer them for my own reference only and without any method to verify or share my responses. After I finish writing the last response, I bookmark the Further Readings so that I can return to them after I've digested my learning a bit more. When I have time to read ahead . . .

CONCLUSION: POSSIBILITIES AND LIMITS

When I first began this study, net neutrality was still secure. Since then, the FCC, under the leadership of Ajit Pai, has repealed Title II net neutrality protections. The resultant unregulated market for Internet Service Providers (ISPs) in the United States has grave implications for the future of Open Education. MOOCs and video-based courseware may soon have to compete with commercial streaming services like Netflix and, in the case of mass media companies like Comcast and Google, even the ISPs themselves, who will have free rein to charge whatever the market will bear for access to the faster lanes of their networks. Looking ahead to the possible tightening of that market, I see a need to maintain diversity in terms of open education offerings by investing in both high- and low-bandwidth online offerings. High-bandwidth is necessary because we don't know just how fast even the slowest lanes will be and there will always be a need to compete with the latest philanthrocapitalistic e-learning; low-bandwidth is needed so that open learning isn't squeezed out by being forced to pay for the sufficient data rates that allow proper functioning.

The most classic form of open education is person-to-person engagement of the type P2PU attempts to facilitate. Unfortunately, this promise of engagement was not fulfilled through the P2PU network. To summarize my experience with P2PU: Sign-up was simple, but the options were very limited geographically. The learning circle advertised was not the one that I attended. Had I been attending to gain High School Equivalency, I would have been frustrated, both by the lack of a learning circle structure (participants were using chapter books and workbooks provided by the facilitator-cum-teacher and not any type of open online resources) and by the strong literacy focus of the "class" itself. This is not to say that there wasn't worthwhile learning occurring there, only that it was not the learning circle for which I signed up. Interestingly, a STEM bias may be at least partially to blame for the misidentified P2PU learning circle. Note that the course title ("High School Equivalency -- Science and Beyond") privileges science as an entree to high school equivalency, which itself was a front for what was really a class on second-language literacy.

The edX course, "Social Work Practice: Advocating Social Justice and Change" was technically labeled correctly, but fell just short of living up to its lofty title. While the video segments did an admirable job of giving voice to students' and even teachers' experiences of oppression and privilege, the class as a whole completely neglected what Brown, Brown, and Ward (2017) might call a "critical sociohistorical consciousness" that connects the lived experiences of oppression to the political, economic, and social histories that give painful form to those experiences. While not explicitly ideological in the neoliberal – or any other – sense, as may be seen in previously-discussed examples from other sites in the research set such a OER Commons and Curriki, the deployment of a critical perspective would help to counter both ideological bias and the neoliberal-cum-capitalistic profiteering furthered by an extreme focus on STEM education

(Masscehelein, 1998), in addition to upping the engagement and retention effects through problem-based learning along the lines of Freire's (1970) conscientization. Instead, top-down sites like edX rely on a banking system of education that fosters a one-way flow of information rather than that combination of learning and experience known as wisdom. Like the definitions and informative slides that dotted this particular course, the net effect of edX's offering was too conceptual and abstract to hit home and cause any substantive change in consciousness. More potential lies in synchronous MOOC offerings, which make discussion boards more dialogical, but more work needs to be done to update the format of discussion boards for those who engage the learn-at-your-own-pace option.

"Conceptual" and "abstract" are also labels that could be applied to Wikiversity's "Virtues/Justice" course, but this series of lessons mitigates that somewhat by providing links to highly informative and entertaining lectures that help to contextualize the philosophical approach favored by the course's authors. Although text and video lessons are fairly common across the research set, what sets this course apart is its expansive use of hyperlinks. As I noted earlier, this course is like many other Wikiversity courses in that it is largely text-based, which might give non-textual learners a bit of a problem. The manner in which hyperlinks are deployed in this lesson helps to mitigate that concern however, in that by arranging them within a topical and subtopical structure, these hyperlinks might actually improve readability for struggling readers (Naumann, Richter, Flender, Christmann, & Groeben, 2007). That being said, this particular lesson would likely benefit from the addition of graphics and visuals to help complement its use of hyperlinks.

In contextualizing my analysis, I refer back to my first research question, framed in the context of my experiences as a learner using these sites: what are the possibilities and limits of contemporary openness in online education? I see great potential for P2PU

in places where learning circles are regularly hosted. From a deschooled perspective, P2PU is the closest thing to Illich's (1971) "radical alternative" to traditional schooling: "a network or service which gave each man [*sic*] the same opportunity to share his current concern with others motivated by the same concern" (p. 130). Personally, the idea of getting together with a group of people who share my interest in a given topic and want to learn more using shared open resources is incredibly exciting, and it seems like where it's caught root, it has been beneficial to those who participate. That being said, in areas like my own where there are no consistent or reliable learning circles, I fear that others may repeat my uneven experience and sour on the idea out-of-hand. Moving forward, there exists a viable opportunity to personally create one or more learning circles to help support both the local and international P2PU project.

MOOCs like edX are certainly useful in their current state, but both the curricula and course design would benefit from a critical pedagogical lens. Perhaps in the case of platforms such as edX, which are widely recognized and accept submissions using their courseware, it may be worthwhile to create counternarratives to such racist, gendered, and corporatist curricula that abound. What would a revolutionary curriculum look like online? In its design, how might it excel the linear banking models employed by edX and other philanthrocapitalistic MOOCs? How can open-source sharing be scaled to make it inclusive of indigenous forms of knowledge as part of its sharing economy? These are the kinds of questions I see myself attempting to answer in the near future.

In this subsection, I have engaged in a deeper reading of selected sites as educational texts. Like any text, there is an expected congruence between the cover, in this case the sites' functionality and learning design, and its contents, herein understood as the experience of learning within that site. However, while edX features contemporary course design with high production value, the learning therein fails to fully engage

problem-posing education and instead resorts to a linear banking model of pedagogy (Barreto, 2011; Freire, 1970). The presence of a branded, and in many ways corporate, university sponsorship reveals the potential for curricula and pedagogies that reproduce the current neoliberal socioeconomic moment (Bowles & Gintis, 1976; H. A. Giroux, 1983, 2002, 2009a; Mavelli, 2014). While edX does offer an "open" course creation platform, the vast majority of its offerings are institutionally, not individually, created, which casts grave doubts upon the engagement of the public-at-large as co-creators of curricula and content. P2PU is a much more rhizomatic (Cormier, 2008; Deleuze and Guattari, 1997) possibility in that it represents an Illichean, networked web of co-interested learners who conspire to educate themselves. However, while P2PU effectively disrupts the top-down curricularizing of MOOCs like edX by decentering the work and focusing on the potential agency (H. A. Giroux, 1983) of its learning circle participants, it does so at the possible expense of accessibility for schooled (Illich, 1971) learners who live outside of one of the 95 cities currently housing nodes of the extended learning circle. That being said, the barriers to entry within learning circles are incredibly low, as are those at play within Wikiversity. With its emphasis on a functional user experience (UX), the major disparity between the cover and text of Wikiversity lies in the exploitation of graphic elements which might better inform learning there. The home page takes full advantage of the graphic potential of wikis, but this is not necessarily carried over into the courses constructed there out of text and hypertext, and more could be done with creative deployment of pictorial elements. While wikis need not be utilized collaboratively to further learning, even a modest level of difficulty in terms of contributing can impinge upon the collaborate possibilities of wikis (Hughes & Narayan, 2009) like Wikiversity, so graphical simplicity could actually be a boon by way of proliferative prospects. Nonetheless, the radical openness of Wikiversity indicates its

strong potential as a community of learning (Shen, Zhen, & Poppink, 2007), and hyperlinking is a relatively simple technology that adds much-needed depth to Wikiversity's offerings and reveals its ultimate promise as an open platform. Taken together, these insights formed at a more granular level undergird my understanding of the limits and possibilities of open education, especially as they relate to the possible disruption of neoliberal ideology and practice.

Chapter 5: Conclusion

SUMMARY OF KEY FINDINGS

Schooled Nature of Sites' Missions and Purposes

Most of the sites included in this research locate their mission within a conception of schooling (Illich, 1971), and differ only in which aspect of schooling upon which they focus. MIT OCW, edX, Merlot and OERU associate themselves with Higher Education. WikiEducator and OER Commons serve a broader K-20 audience, and both Curriki and IOER focus more or less on K-12, although they, like any others, may also be freely accessed by anyone outside of school. This schooled focus takes the form of specifically targeted branding, site and course structure, organization, and searchability. By tying their function to schooling, these sites hamper their usefulness to those who are either unfamiliar with or unwilling to further engage the reproductive (Bowles & Gintis, 1976; H. A. Giroux, 1983) and neoliberal reform-minded (Au & Ferrare, 2015; Blacker, 2013; De Lissovoy, 2013; H. A. Giroux, 2014; Lipman, 2011b; Tienken, 2013) strictures of contemporary schooled consciousness.

Of the remaining sites that eschew formal alignment to schooling, Khan Academy is limited by a missionary focus on top-down education -- rather than reciprocal learning -- by those who create its courses, as well as by its ties to Gates-fueled venture philanthropy (Ball, 2012b; Cody, 2014; Hursh, 2015; Saltman, 2010, 2011; Sturges, 2015). Only OEC, Wikiversity, and P2PU frame their missions and purposes in a context outside of schooled institutions and thus seek to serve the widest possible audience of potential learners. In so doing, these sites most effectively challenge traditional notions of schooling, education, and curriculum while simultaneously resisting neoliberal incursion

through specific positioning of site licensing, funding, curriculum, and -- more certainly in the case of the last two -- learning experience.

Site Licensing as a Marker of Proliferative Openness

Openness provides the possibility of downstream proliferation of learning as knowledge is shared and reformulated within new contexts and for diverse audiences, who then may, in turn, continue the cycle as reciprocal teachers/learners. Within the present study, a significant bounding of the limits and possibilities of open education to proliferate in this manner is established by the level of openness in play on each site, as reckoned according to the 4 Rs -- the ability to reuse, redistribute, revise, remix specific course assets (J. Hilton et al., 2010) -- enabled by the applicable licensing regime, which in most cases involves some form of Creative Commons ("Creative Commons," 2017; Lessig, 2004) licensing. A meaningful view of each site's approach to openness may be gleaned by establishing how each site licenses itself. While the networked courses featured on most of these site renders a reading of specific course licensing beyond the scope of the present study, the mode of licensing favored by the hosting site itself often extends to many, if perhaps not all, of those courses networked within. Creative Commons licensing is seen as important weapon to forestall enclosure (McCann, 2005) and maintain access to knowledge and information as part of the broader commons (Boyle, 2008; De Angelis, 2010; De Lissovoy, 2008) and public domain (Conhaim, 2002; Garcelon, 2009).

Working backwards, the most neoliberally-implicated sites have the least amount of openness in that they tend to eschew Creative Commons licensing in favor of an All Rights Reserved traditional copyright regime, as seen in sites like edX, IOER, and Khan Academy. Others, like MERLOT and Curriki, employ a hybrid Some Rights Reserved

approach that allows them to lock down certain proprietary elements while still leaving room for a freer exchange of content and ideas. Both of these classes of sites can be considered as less-than-open. As might be expected, when titular openness is at play -- as in OER sites like OER Commons and MIT OCW -- Creative Commons (CC) licensing, in the form of Creative Commons - Attribution-Non-Commercial-Share-Alike (CC BY-NC-SA) is brought to bear. The restrictive nature of this particular CC license allows the user to reuse, redistribute, revise, and remix the content, provided that credit is provided, commercial reuse is prohibited, and any resultant assets be shared with self-same licensure. While the prohibition of commercial reuse preserves the not-for-profit open aesthetic, it also limits proliferative ability in a way that restricts those seeking to create a sustainable business model (Annand, 2015; de Langen & Bitter-Rijkema, 2012b) for open ecosystems. This limit forces a choice: is non-profitability worth enforcing though restrictive licensure? As the costs for open creation are somewhat undetermined, depending on the type of open content being pursued (Butcher & Hoosen, 2012) but tend to be significant for the individual, especially in terms of time investment (T. Bates, 2015), I believe that this particular restriction is a bit premature, as it forms a barrier for entry for individuals which favors institutions, such as universities and philanthropies, at the expense of independent and deschooled contributors, whose participation is needed to challenge the top-down banking model (Freire, 1970) currently in place across many of sites in the present research set, which may provide some opportunities for sharing, but which feature centralized and institutionalized content at their core.

A less restrictive CC license, that of Creative Commons - Attribution-Share-Alike (CC BY-SA) is employed by the wikis in this study, WikiEducator and Wikiversity, as well as P2PU. The advantage to this type of licensure is that it requires any derivatives to provide attribution and be shared under the self-same licensure. This type of licensure

balances the need to keep the openly-licensed work accessible and proliferative while still providing opportunities for individual OE contributors to realize some sort of monetization of the overall work. The chance that someone could use the provided open content in a commercial venture is a worthwhile trade-off for the gains made in terms of proliferation, especially ability of independent deschooled contributors who don't benefit directly from institutional or philanthropic largesse to challenge the institutional stranglehold on open content. OERu is the lone site in this study that provides unique content and employs the least restrictive CC license, that of Creative Commons - Attribution (CC BY), and while this type of licensure may seem desirable in terms of its adaptability by a wider primary audience, in that derivatives may not have to utilize any type of open licensure, this provides a downstream limitation for secondary audiences who may find the open content in a penultimate non-shareable format, thus limiting its ultimate proliferability. For this reason, the CC BY-SA approach employed by WikiEducator, Wikiversity, and P2PU provides the best balance of shareability and proliferative potential.

Site Funding as an Indicator of Neoliberal Investment

The admixture of funding employed by free-and-open sites provides an important lens on the question of disruption or continuation of neoliberal practices, for the support provided comes at a cost in terms of both content and ideology. All of the sites in this study, save one, rely on some mix of corporate, philanthropic, academic, individual, Intergovernmental and Non-Governmental Organizations (I/NGOs), or governmental support. The lone exception is Wikiversity, which is the only site in the present case set that relies exclusively on individual donations and support. All of these funding sources have ramifications for the limits and possibilities of OE, especially when viewed within

the context of neoliberal incursion. Widespread corporate sponsorship is most obviously problematic, for it provides a direct channel for corporatism (Spring, 2012) to appropriate open networks in a self-serving manner that compromises the critical potential of open learning and also serves to indoctrinate learners with a benign understanding of corporate engagement (Levine & Au, 2013). Philanthropic support, especially in its modern venture capitalistic incarnation (Saltman, 2010, 2011) can serve as a wolf in sheep's clothing for the commercial and neoliberal intentions of its foundational backers, which is most acutely visible in the copyright restrictions in play across Gates Foundation-funded sites like edX and Khan Academy. Academic sponsorship belies the deschooled perspective employed by this study and serves to undermine open reciprocity while providing an inroad for arguably neoliberal ideologies in play across modern research universities, including ideological inputs, output consumption, the shaping of educational policy, and upward wealth redistribution (Ogawa & Kim, 2005). I/NGO support removes the direct involvement of the public by deferring decision making and curricular organization to policy networks (Ball, 2012a) that may or may not represent the will or the voice of the multitudinous commonwealth (Hardt & Negri, 2005, 2009). This problem is compounded in sites that enjoy direct governmental support, for the current geopolitical moment finds most western governments, especially here in the United States, arguably situated as neoliberal states (Harvey, 2005b) which serve to create and sustain structures, policies, and systems that favor the accumulation of private capital over the public good. To help overcome the limits of neoliberal enclosure through individual donation and support, I offer an instructive lesson in Saltman's (2010) reading of Mauss's The Gift (1990): by emphasizing the sociocultural context of gift exchange over the absolute economic value of the gift itself, the reciprocity of open learning and contribution needed for

transformational enactment of critical and inclusive open source practices at the scale of the Multitude (Hardt & Negri, 2005) may be realized.

Curriculum Boundaries and Learning Frontiers

Of the sites purposefully selected for study as part of this research, two are networked sites that serve to connect open learners with resources and support: OEC and P2PU. As such, these sites cannot be meaningfully interrogated at the level of specific curricula, although P2PU does allow for an investigation of learning experience through its learning circle approach, which closely approximates Illich's (1971) diagnosis of the need for learning webs and networks to connect deschooled learners. The wikis surveyed herein adopt two very different approaches: WikiEducator is a resource for open educators that generally lacks content targeted at learners, while Wikiversity harnesses the power of the wiki approach to create a reciprocal and proliferative learning network, albeit one that has specific limits by way of its text-and-hypertext-based methodology.

In all discussed sites that feature learner-targeted course sets, lists, and resource collections, a general trend is observed whereby STEM, business, and even test preparation are emphasized at the expense of the Humanities and Social Sciences. The privileging of business courses delineates the limits upon OE sites constructed to meet the narrow commercial and labor needs of neoliberal capital accumulation, while test preparation as a significant category indicates the influence of neoliberal control and "reform" through productivity (Au, 2010). The prominence of STEM and even business fields reflects the false narrative of labor shortage that seeks to drive down labor costs in order to maximize corporate profits (Stevenson, 2014), even as the general de-emphasis on the Humanities and Social Sciences has grave implications for student self-

actualization and critical thinking. Broadly considered, the curricula of Open Education sites are artificially bounded in a manner that benefits neoliberal economic interests.

In terms of learning experiences, three specific sites were targeted for extended exploration of what it is like to engage as an open online learner. P2PU was initially promising and its simple and easy-to-navigate site welcomed engagement. Unfortunately, inconsistency of local offerings proves to be a significant limitation, even as it serves to make a larger point about the need for expanded participation in leading and attending learning circles. As a corporate-, university-, and foundation-sponsored MOOC, edX suffers from a top-down approach that favors a banking model over critical pedagogy (Freire, 1970, 1985; H. A. Giroux, 2011; Veletsianos, 2013), even though the course layout, while linear in design, was easy to navigate and featured mixed media. The same could not be said of Wikiversity, which was as dazzling (and possibly overwhelming) in its networked hypertextuality as it was limited in terms of learning modalities. The limited modalities -- simple text, hyperlinks, and graphics -- on offer within the present version of Wikiversity could be the source of its greatest possibilities, however, for they allow almost anyone to contribute to the learning resources gathered there and also effectively insulate the site's function from the specter of bandwidth constriction that threatens more technology-dense forms of Open Education, such as those that rely on video and/or interactive e-learning course designs, in the post-Net Neutrality era (Yamagata-Lynch et al., 2017).

CONCLUDING CONTINUATIONS, LIMITS, RUPTURES, AND POSSIBILITIES: AN OPEN-ENDED CONTINUUM

It may be helpful at this penultimate moment in the present report to consider the sites in this study along a continuum in terms of open practices and concomitant possibilities. Discarding the canard of the Khan Academy and focusing on those that self-

identify as open, sites like Curriki, IOER, and edX can be located on one end of a spectrum of possibilities. Here may be found vast learning assets appropriate for traditional educational expectations. Courses and OER can be located by topic and learning standards, and the options run the gamut of canonical subjects. These sites are well-constructed and have slick user interfaces, and their funding and branding is superb, especially for not-for-profit ventures, which these, like all sites in this study, are. Unfortunately, a critical perspective reveals some very real limits at this end of the OE continuum, and they are all tied to the extent to which these particular Open Education sites serve to discretely promote neoliberal educational practices.

Investments therein by corporate, venture philanthropic, and even state-level interests reveal a biopolitics of neoliberalism (H. A. Giroux, 2009b) at play as the social state, in the form of traditional schooling, recedes and is subsumed by a corporate state -- see also Harvey's (2005) neoliberal state -- intent on enclosure. The subjectivity of learners is objectified by a modular approach to learning that enforces knowledge capitalism (Lim, 2014; Olssen, 2006; Olssen & Peters, 2005; M. Peters, 2013) at the expense of truly open practices, as can be seen in the rights-reserved deployment of copyright protections employed by these particular sites. Here, governmentality (Dean, 2013; Foucault, 1991; Luxon, 2008; Olssen, 2006) intrudes upon the free play of ideas through a focus on standards and credentialization that seeks to inculcate the self as an individualistic and entrepreneurial agent for whom learning is tied solely to outcomes (Pinar, 2011). However insidious these neoliberal strategies may be, they are rendered largely invisible by the openwashing (Weller, 2013) that serves to mask the mechanics of their action. Thus can be seen the real danger of these seemingly innocuous learning sites: they are wolves in sheep's clothing seeking to enclose the digital information

commons (McCann, 2005) through ossifying and objectifying regimes of knowledge enshrined via copyright.

This deployment of copyright within a global juridical framework allows for a political critique of state-level power -- understood in the Foucauldian sense of postmodern power relations -- that reveals the how power circulates in the social body (Negri, 2008), and these very circulations and their complexity establish the context within which "processes of subjectivation, resistance, and insubordination can occur" (p. 32). Though licensing might seem like a relatively minor point compared to the larger curricular questions in play, it provides the point at which the corporate state may be formally implicated in the promulgation of neoliberal practices, even as a possible means for opposition is likewise revealed through the opportunity to subvert copyright through Creative Commons licensing or even the public domain.

Through governmentality, knowledge capitalism, and intellectual property, neoliberalism attempts to enclose by striating the smooth space (Deleuze & Guattari, 1987) of the digital commons. In Open Education, however, may be found a rhizome that is disruptive of striation, and its consideration reframes the continuum noted above, for "any point of a rhizome can be connected to anything other, and must be" (Deleuze & Guattari, 1987, p.7). This conception differs from arboreal structures (Deleuze & Guattari, 1987), such as those that emerge when power is purportedly transfixed through capitalistic accumulation (Nitzan & Bichler, 2009) and associated practices. Therein lie the potentialities presumably located at the other end of the spectrum described above, whereby P2PU and Wikiversity may be found, but only if the previous continuum might be reconfigured as a ray, with neoliberal enclosure situated as the far endpoint and the ray itself extending infinitely outward in the direction of new curricular possibilities -- toward smooth space and toward openness, for openness exists in its own plane of

immanence (Hardt & Negri, 2001), which exists as a third space (Pinar, 2011) between the lived world of experience and the virtual online world wherein that experience is shared for learning.

Openness is immanent because it always already exists, in the form of the commons (De Angelis, 2010; De Lissovoy et al., 2015) and commonwealth (Hardt & Negri, 2009) of knowledge that is institutionally enclosed, appropriated, and colonized. This third space of openness has been more firmly established through the work of Creative Commons (Conhaim, 2002; Lessig, 2004) and its liminal borders (Pinar, 2011) are maintained -- and even expanded -- by the open learners, teachers, and scholars whose work lives there. The task before exopedagogues (Lewis, 2012) who wish to operate upon these waters is to remain active within the parameters established by open educational practices, such as consistent support of the 4 Rs of openness (J. Hilton et al., 2010), and engage actively with open online communities of learning via third-space outposts such as open scholarship (Veletsianos & Kimmons, 2012), wikis, and even Learning Circles, rather than take safe harbor in the institutionalized MOOCs and OERs that present themselves most readily to those active in public and higher education.

What is unique to the most promising OE sites is the very real possibility of contributing to the learning of others in a dialogical (Pinar, 2011) and comparable exchange of ideas, such as can be seen in Wikiversity, which allows anyone to both learn and teach via its highly-accessible wiki structure, and P2PU, which likewise places leading and attending Learning Circles on the same plane. Through active engagement as a sharing contributor in these and similar sites, the autonomous and formative potential of the OEM may yet be realized.

Rhizomatic Co-Creation Within the Immanent Third Space of Openness: Reframing Open Education as Openly Shared Learning Opportunities (OSLO)

Referring back to what Biesta (2013) calls the education question in theory and theorizing, whereby a focus is needed to help understand what it means for particular theories to be used or applied within educational research itself, I can speak to my own discomfort with the longstanding concept at the very heart of this study: that of Open Education. As this project adopts a deschooled perspective based on the work of Ivan Illich (Illich, 1973, 1973a, 1977), I agree with the challenge that he makes to the word "education," even though I also think that what is typically meant is, "universal schooling." There is a passive, receptive connotation associated with that word: Who is doing the educating? Why does the learner have to be "educated"? The answer seems to lie in a reliance on institutions and others, which Illich famously critiques. I agree with the central notion established by Freire (1970) that learners are more than capable of educating themselves if given the proper frame of reference and resources. There is also the matter of confusion over the multiple meanings of "Open Education" that I catalogue in the Review of Literature for his project: for some, it means what it means to me: open and shared learning that leverages openly-licensed courses and resources, but others focus on the classic definition of, "open" that denotes open and distance learning (ODL) or perhaps merely open-access, i.e., free. With these issues in mind, I propose that within the field, we reframe the term, "open education" to consider and include the appropriate range of Open Educational Practices (Deimann and Farrow, 2013), as well as the established preference for a model that equally and subjectively weights both the learning and teaching functions in the person of the learner her-/himself. To that end, I propose a new model and way of thinking about Open Education that is more active and captures the proliferative expectation that learners will do more than just receive the learning on

offer -- that they will actively add their own learning contributions to the networked site(s) in use.

To frame the decentered, active, and inclusive nature of this shared work, I propose moving beyond the institutional and top-down connotations of Open Education -- including the OEM -- and reframing the work to be done as the rhizomatic propagation of Openly Shared Learning Opportunities (OSLO) external to schooling, but still accessible by it. This figuration preserves the central accessibility features of openness, while also, through Shared Learning, encouraging the important learning practices that Couros (2009) describes as open, connected, and social. This is not a receptive conception of "education," but a challenge for everyone, educator and educated alike, to share learning as an active co-creator and contributor to sites like Wikiversity and to model open scholarship actively through participation in structures such as P2PU's Learning Circles, especially where local representation and participation is badly needed, such as here in Texas. By eschewing education by others in favor of the provision of Learning Opportunities, the telos of Tylerian outcomes is replaced by an approach grounded in the recursive interplay of experience and engagement that lies at the heart of self-formation (Bildung) and cosmopolitanism, as explicated by Pinar (2011). Learning occurs through experience, and OSLO is well-suited for those that wish to learn at their own pace, in their own way, and within the context of their own needs. Moreover, the subjective becoming of Bildung (Deimann & Farrow, 2013; Pinar, 2011) is enacted as learners are empowered to become teachers whose lessons are grounded in their own engagements with the world. Moving forward, I will favor use of the term Openly-Shared Learning Opportunities (OSLO) to describe my own humble contributions to the field, as well as that of others so inclined.

IMPLICATIONS FOR FUTURE RESEARCH AND ACTION

I see the implications of this research project as applicable to two connected spheres of influence: my own personal work as an independent and deschooled promoter of Openly Shared Learning Opportunities, and the field of education, in both its OEM and curriculum studies/curriculum theory constituencies. I will begin with the personal and then branch out to areas where I feel my work can have a meaningful impact. I have no desire for this project to merely sit in a database, waiting to be perhaps read some day by an unknown researcher of the future, but in my independence and situation outside of the academy, I am also aware that absent academic publishing of this work or its derivatives, which may or may not be desirable or even possible, it falls to me to act upon the insights I've gleaned from the work itself.

Personal and Practical Implications

In my own work moving forward, I will avoid formal references to Open Education and focus instead on creating and sharing Openly Shared Learning Opportunities. This formulation will need to be explained and promoted, which I propose to do using my own website, which is currently under construction: openlearningexchange.net. This site will also house the results of this research project, which will be shared using a CC BY-SA license so as to help provide learners and contributors with a roadmap for navigating the sites I've investigated, as well as others to come. This site will be completely independent and will not seek any level of outside support, either corporate or philanthropic. This will help shield my work from neoliberal enclosure, even as it places a specified amount of trust in the continued relative openness of low-bandwidth Internet. Barring that, the Dark Web might provide an even more subversive -- and perhaps even revolutionary -- possibility.

I am under no illusions that people will flock to yet another website, and I take to heart the warnings of scholars like Jodi Dean (2009), who warn of the danger of passive network participation instead of actively engaging in resistance. Thus, I will maintain an active role in both local and international educational movements as both a political being and a conscientious promoter of OSLO and open learning practices as tools in the resistance. I have already joined the Creative Commons Open Education Platform, and established a preliminary connection with Cable Green, the Director of Open Education at Creative Commons. This platform provides me with a ready audience for this work and that to come, which will also include original contributions to Wikiversity and the leading of a local Learning Circle via P2PU. I've chosen Wikiversity as the channel for my own online contributions because of it has a huge potential audience, features an established brand and identity, and I personally feel that its open approach aligns most closely with my own hopes and aspirations for OSLO. While edX may have OpenedX (edX, 2017, https://www.edx.org/about-us) and MERLOT has its own ContentBuilder (MERLOT, 2017, http://info.merlot.org/merlothelp/create_with_content_builder.htm), both of these require a level of technical skill and capacity that renders the easier-to-engage sharing model of Wikiversity more promising in the short term. Wikis, by virtue of their being largely text- and hyperlink-driven, are much easier to participate in, as both learner and contributor. Unfortunately, they are also much more geared to textual learners, so it will be necessary to fully maximize their visual and hypertext components. The lower-bandwidth technology of wikis and learning circles may be a boon, however, if the new unregulated U.S. ISP market does indeed result in the constriction of higher-bandwidth traffic on the Internet. This will need to be confirmed, both through my own work there and perhaps also through future research.

Looking ahead, any learning opportunities shared via open channels would do well to engage in cross-platform learning design. For example, you could make learning on the same topic -- based on the same source content or Subject Matter Expert (SME) collaboration -- available as a MOOC on edX, as a scaled down course on Wikiversity, and as the centerpiece of an in-person learning circle hosted by P2PU. These types of strategic efficiencies are necessary for Open Education to remain sufficiently agile and self-aware to combat both enclosure and obsolescence. It is also possible to imagine how educator resource sites like WikiEducator could eventually be leveraged to provide explicit instruction for would-be pedagogues in open-source e-learning creation tools such as these or the platform-agnostic Adapt courseware (https://www.adaptlearning.org/), but for now, it is my opinion that Wikiversity provides the greatest possibility as it relates to rhizomatic curriculum at scale.

Would-be OSLO pedagogues must remember the value of the 4 Rs (J. Hilton et al., 2010) and ensure that the learning courses, hyperlinked entries, and OER that they contribute stand the greatest chance of being shared out if they are fully reusable, redistributable, revisable, and remixable. These 4 Rs also provide a framework for the kinds of iterations that may be required or helpful when adapting the work of others' openly-shared content, assets, or OER. For example, just the ability to revise a work to translate it into other languages could have an enormous impact on the global audience for one of Wikiversity's non-English-speaking portals. This simple iteration would be impossible for content locked down by copyright or even if shared with less-permissible versions of Creative Commons licensing, such as anything with the NonDerivative (CC ND) appellation.

It will also be important to find sustainable ways of encouraging open online participation, especially given the time-and-resource-intensive nature of open creation.

While it may be hoped that the crowdsourced model dependent on individual contributions that is employed by Wikiversity is sustainable over the long term, as it has been with Wikipedia, this can't be taken for granted, and sharing across other platforms is still likely desirable. To the extent that such cross-platform resource sharing is engaged on other sites, care must be taken to not allow vulnerabilities to neoliberal enclosure to creep in, for example by accepting or supporting, through allied contribution, the lure of corporate sponsorship or even venture philanthropist support. There is also the significant question of how to create, access, and share learning opportunities that feature a critical digital pedagogical (Morris & Stommel, 2017) perspective. This is where Wikiversity truly excels the other relatively-open-and-accessible platforms in this study, such as OERu: the rhizomatic expansiveness of its accessibility allows for a more diverse audience of digital creators willing to share and learn reciprocally. Rhizomatic curricula is not to be driven by experts, but rather negotiated and constructed through the engagement of learners themselves (Cormier, 2008). This may prove necessary to bring the STEM-heavy curricula currently in play into humanistic balance, and to do so in a sufficiently inclusive and authentic manner that speaks to the experiences of the multitudinous global audience. It remains to be seen if this imbalance is at least partially a result of demand, so specific research into the curricular compositions of promising OE/OSLO sites, both those featured here and those missed or still emergent, may help to address the identified STEM imbalance in the years to come.

Implications for the Field

As this has been a wide-ranging and inclusive examination of diverse incarnations of free-and-open-source learning, more work may be done to dive deeper into almost any of the high-level findings that have framed my conclusions about the limits and

possibilities of open education relative to neoliberal practices. Any single site or class of sites could be further interrogated to establish the specific function and outcomes relative to their stated purposes. Specific courses might be examined to more closely determine the precise manifestations of corporate and capitalistic ideology, as well as possible sites of resistance and exception. Curricula and learning practices may be investigated in more detail and with more attention paid to the specific experiences of each one. This work has endeavored to provide an overview of the range of Open Education, broadly considered, and the task of establishing explicit issues within specific sites lies within the mandate of future research.

I've previously discussed the limitations upon Open Education at scale that must be reckoned relative to the so-called digital divide (Antonio & Tuffley, 2014; Dobransky & Hargittai, 2006; Lane, 2009; Meinrath et al., 2011; van Dijk & Hacker, 2003; Wilson et al., 2003). Importantly, in their deployment of Bildung as a theoretical framework for Open Education, Deimann and Farrow (2013) reject a deficit notion of the digital divide, embracing instead the Mozilla Foundation's positive conception of "web literacies," defined as central abilities needed to use the Web most effectively for personal development:

> 1. Exploring - I navigate the Web while learning, questioning and evaluating what it has to offer. 2. Creating - I create things with the Web and solve problems while respecting the work of others. 3. Connecting - I communicate and participate appropriately in one or more Web communities. 4. Protecting - I protect the Web as a public resource for free expression (p. 352)

Methods of teaching these web literacies, both digitally and via analog means to those who don't currently have Internet access, will need to be further explored and practiced.

Importantly, care must be taken to guard against the fragmentation of knowledge, the substitution of knowledge for learning, and the modulation of learning to fit OE and

OSLO structures, lest openness fall prey to knowledge capitalism and neoliberal enclosure (M. A. Peters, 2003, 2009, 2010). While the public domain is especially prone to enclosure (Boyle, 2008), further work may be done to explore the wisdom of eschewing the parallel legal framework of Creative Commons licensing altogether in favor of the even more radical, if risky, option of promoting OSLO completely within the public domain.

Political action may well be required in the face of an advanced neoliberal front, such as the latest attack on Creative Commons in Europe in the form of the so-called, "Link Tax" that denies creators the right to refuse remuneration (Vollmer, 2018). Barring this, the public domain may well deserve more serious reconsideration as a critical alternative requiring a field-wide mindset shift regarding the ego of attributions, which would have to be jettisoned to fully embrace a shift to shareable and non-attributed works that reside freely inside a guerilla commons made up solely of anonymous contributions, perhaps housed underground in Tor networks or on the Dark Web. One can never forget the surveillance potential of the current Internet, and this could be especially hazardous to digital critical pedagogues of the emergent future.

This was not intended to necessarily be an action research project, but the conclusion that I draw from it is that action is necessary to achieve the possibilities of openness in online education, overcome the limits proscribed by neoliberal capture, and resist further enclosure of the knowledge commons. My only hope is that the reader feels compelled to further grapple with the possibilities raised by a consideration of open learning as a rhizomatic phenomenon whose outcomes we may yet shape together.

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