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## Why Higher Education Demands a Paradigm Shift

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### Who Has Access to Knowledge Making?

A few years ago I spent a day in a nondescript cinder-block office space of the cement-floor and fluorescent-lighting variety, a workspace that included twenty or so people crammed into fifteen metal desks amid maybe a hundred desktop computers, laptops, and other devices. It was in an anonymous warehouse section of San Francisco, located on an obscure side street beneath a noisy highway overpass. There wasn't even a name on the door. I pressed the doorbell. Nothing. I waited anxiously for a few minutes, pressed again, and then finally someone buzzed me in. I had arrived. Welcome to the corporate headquarters of *Wikipedia*, the modest, unassuming, anonymous, crowd-sourced yet very human heart of the sixth most trafficked Internet site on the World Wide Web.

I was there to interview Jimmy Wales, *Wikipedia's* cofounder, CEO, principal publicist, and tireless open-access evangelist. I'd had dinner with him and some mutual friends once before at a technology and learning event, but today my purpose was to find out the answer to, really, just one question: "Did you know, Jimmy?"

I asked him: Did you even suspect, in 2001, when you and Larry Sanger first launched *Wikipedia*, that, in one decade, you'd have the largest encyclopedia the world has known? *Did you know* that one hundred thousand anonymous contributors would together create 23 million articles in 285 languages?

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No cloister in history could compete with the accomplishment of this virtual scriptorium. *Did you know, Jimmy?* Did you know that you would be creating a knowledge site that would be visited by over 365 million readers worldwide and have 2.7 billion monthly page views in the United States alone?

Did you know?

Wales's answer was characteristically modest: "In 2002, we thought a couple hundred people would think *Wikipedia* was an interesting experiment," he said.

That "interesting experiment" is now, a decade later, the first place most of us go for information. And often it's not just trivial facts but life-shaping information: the place I might turn, for example, to inform myself quickly about a diagnosis of a catastrophic illness a family member is telling me about on the phone.

*Wikipedia* is sometimes even a good corrective to traditional scholarship. Six or seven years ago, when I first began having my students contribute to *Wikipedia* as a substitute for their research paper, at a time when many educators were "banning" its use on college campuses, I came across the entry on "calculus." The entry gave credit to Egyptian, Greek, Iranian, Chinese, and Indian formulations of calculus that happened centuries before the famous intellectual property battles over the "invention" of calculus by Gottfried Leibniz and Isaac Newton. Knowing nothing of this transcultural history, I called one of my institution's reference librarians for verification; no book in our libraries contained this information, but she was tireless in working to confirm that the transnationally crowd-sourced content was accurate. She did so by checking with her counterparts at research universities in Egypt, Greece, Iran, China, and India. Each of them knew about the Western history of "calculus," one knew about her own country's contribution, but none knew the whole transnational picture available on *Wikipedia*.

Or check out *Wikipedia*'s entry on "Americas." What once would have been dismissed as "political correctness" is now a deeply informative history of Asian immigrations between 40,000 BCE and 15,000 BCE, followed by a second wave of migration of Na-Dene speakers and then Inuit into the Nearctic around 3500 BCE, a long and complex immigrant history of the Americas prior to "discovery" by Christopher Columbus millennia later.

This revolution in participatory knowledge provokes a question: Why isn't this open-access avenue of knowledge making inspiring us academics to rethink what we mean by expertise, what we mean by knowledge, authorship, peer review, credentials, publication, and, indeed, the future of higher education? Why is it taking us so long to change our paradigms of what form of education is required to prepare the next generation for true, responsible participation in their culture? It is true that education is under assault from all quarters, and public funding

of education has decreased as precipitously as the income disparity between the top 1 percent and the rest of US society has grown. Yet in an atmosphere hostile toward public education and where private education tuition costs soar, should not we, as responsible educators, be even more responsive to the needs of students and the requirement to prepare them to be fully responsible adults in a changed and ever rapidly changing society? Why is it taking us so long to make the shift?

There are three salient features of open-contributive knowledge-sharing sites such as *Wikipedia* that should be prompting a new educational paradigm. First, openness of contribution allows us to rethink expertise since anyone, regardless of degree attained, can contribute alongside anyone else as long as they can verify their assertion. Second, the lack of a formal, predetermined taxonomy of what counts as knowledge explodes the notion of canon and contests the boundaries of discipline. Third, voluntarism and the lack of compensation, payment, or even an overt recognition system should make us rethink educational requirements and reconsider what is or is not needed to motivate intellectual activity and promote learning, for students and also for the professoriat. Is a peer-reviewed monograph the only or even the best way to success for all, or most, or even many? Are other forms of research and scholarly communication better suited to the demands of the moment?

Revolutionary new digital avenues of publication—founded in varying degrees on the three conditions of open contribution, open canon, and voluntarism—have transformed the ways we live and learn outside of school. But formal education has not kept up with the changed structural requirements of everyday life and work for which education is supposed to prepare us. Nor is it just the humanities that have fallen behind the pace of change in the world at large. Many computer science departments, too, behave as if the Internet hadn't been invented yet.

I am arguing that now that we have proof that, where access is open, humans want to learn and want to contribute what they know, we need to design our requirements, responsibilities, and opportunities as educators accordingly. At the same time, that desire to communicate is not without peril, which makes our job more important than ever. In an information age characterized by new potentialities of access, we must redesign our institutions and modes of instruction not just for “critical thinking” but for “creative contribution.” We need to encourage not just a culture of critique but a culture of making and participating. If we do not, future generations will lose the possibilities of access that Tim Berners-Lee and others wrote into the first hypertext markup language (HTML), features that gave the web an open architecture and permitted utopian possibilities such as *Wikipedia* to exist.

## Public Culture

Here is just one example of the challenges offered by access that we need to be responding to in our classrooms: roughly 13 percent of contributors to *Wikipedia* are female. In a world populated by female knowledge workers, librarians, and teachers, what does it mean when there's only a 13 percent female contribution to the greatest encyclopedia the world has ever known?

It means that open access is not de facto open. Open contribution and participation must be taught and reinforced and practiced.

As educators, this should be our job description in the twenty-first century, not teaching received truths but reshaping pedagogy to instill in students the ability, temperament, and talent to find knowledge, evaluate it, collaborate to make it, and share it wisely and well. We need to teach new skills of online, public self-curation, for example. Learning to write should be learning to express oneself online, in public. This means teaching the skills of self-representation and self-publication as professional and preprofessional forms of communication. This means adding an activist *maker component* to the analytical skills we humanists traditionally teach.

To do so means taking seriously the epistemological possibilities that began, roughly, in April 1993 when the Mosaic 1.0 browser was made commercially available for a larger public. The defining feature of HTML and the World Wide Web is that mass media is no longer unidirectional: anyone with an idea can communicate that idea to anyone else in the world who has access to the Internet. But this astonishing new avenue of access has economic, legal, psychological, cultural, and social impediments. Understanding and overcoming those barriers—what are sometimes called the twenty-first-century digital literacies—should be part of both general education and graduate training in the twenty-first century.

If we take up this challenge of our age, our place as educators and as humanists will be essential. If, on the contrary, we continue to teach as if we lived in a world where only professors have canonical avenues of access to knowledge, where our job ends at critical thinking rather than critical contribution, then we render ourselves irrelevant—as expendable, say, as the last *Encyclopaedia Britannica* moldering on the library shelf.

### **Taylorism and the Origins of the Research University**

Before we can shift the paradigms of higher education, we need to remember our own institutional history. Pundits like to say that education hasn't changed in two thousand years. That's partly true, but it is also misleading and in the end unhelpful to the goal of institutional change. On the contrary, almost all the

*institutional apparatus* that now governs our forms and norms of higher education were developed in the period from 1870 to 1925, the height of the Fordist industrial age. They were developed explicitly to support the ideologies of capitalist production in that era of global industrialization. The founding of the Johns Hopkins University in 1876, the first research university in the United States, meant remodeling the medieval form of the Western university according to the specialized, disciplinary needs for expertise demanded by industrialism, finalizing the transformation of farmers into factory workers, shopkeepers into corporate managers. Denis Diderot in the late eighteenth century began the process of modern knowledge specialization by breaking all knowledge into constituent disciplines. In Germany, in the early nineteenth century, Humboldt University of Berlin became the model for the new, modern research university. In the United States, those discipline-specific training features were then “mechanized” into the apparatus of higher education with which we all are familiar today.

Quite precisely, the late nineteenth-century research university was structured around the affordances of the *last* information age, when steam-powered presses and machine-produced paper and ink made print abundantly available to the masses for the first time in history and the new technologies of electricity and telegraphy were extending the reach of mass, top-down broadcast media through film and radio.

I won't rehearse here the history of each of the developments in the workplace and corresponding ones in education during the last information age except to underscore the educational institutionalization of the mechanisms of expertise. Among the chief matters to be institutionalized were the determination of who has the most status and power to dispense knowledge, what canon of knowledge counts, and how to quantify and certify the acquisition of that prescribed body of authorized knowledge. These three conditions are, of course, the inverse of the three definitional conditions of *Wikipedia* and other contemporary digital crowd-sourced knowledge sites.

Few educators today even realize how deeply Taylorized are the structures of the research university that we have inherited. I mean this literally. Frederick Winslow Taylor's theories of scientific labor management very quickly became what I call scientific learning management. Taylor didn't just chart productivity in pig iron factories and write books that changed the face of American enterprise such as *The Principles of Scientific Management*, published in 1911. He was also the first distinguished professor of business in America, at the nation's first professional postbaccalaureate business school, the Tuck School of Management at Dartmouth. His ideas of scientific learning management spread throughout higher

educational administration as good, modern management practices for charting intellectual productivity for the successful administration of the university as well as within society more generally.

The humanistic mode of analytic thinking has been in decline in status ever since. Perhaps even more than scholars such as Christopher Newfield in *Ivy and Industry: Business and the Making of the American University, 1880–1980*, I see liberal arts and the humanistic mode of analysis as at least part of what the management apparatus of the research university was designed to minimize. Once liberal arts or general education becomes something to pass through on the way to the goal of specialized, professional expertise, it morphs from eternal verity to general point of entry.

The university we have now is a monument to the industrial age and Taylorism. We are still educating students as if they participated in a broadcast model of the world where knowledge flowed from experts to everyone else. Yet today our students participate in a knowledge ecology that is dispersed, disorganized, crowd-sourced, participatory, and yet also hypercommercialized. From Blackboard to Instagram, sites that began with user-generated content have changed not only ownership but terms of use. Tantalizing in design, they ultimately existed to turn voluntary and open contribution into someone else's profit center. The adage of the Internet, too often true, is that if it is free, you are not the consumer but the product being sold. Contributor beware!

Yet despite the voraciousness of online vendors, the clarion call of “information wants to be free” presupposes that creators—writers, artists, musicians, scholars, researchers—should be offering their labors for free and be open to all. Doesn't this idea of “free content” simply replicate the hierarchies of the past, with those in the humanities, arts, and scholarship once again enjoying the least status and least remuneration for what they produce? We humanists need to be rethinking our job to include helping students negotiate the promise and perils of such “open” access to their future (and perhaps to our own as well).

This is not hard to do, but it is transformative. As more and more of us have found, even the seemingly simple act of making our undergraduate and graduate teaching public, creating syllabi and platforms that support our students' contribution to their own learning, changes the content and context of what we do. Using a WordPress blog for open, public class dialogues means thinking through with our students the implications of access in the digital age with regard to intellectual property, privacy, security, and sustainability; the hidden expense of public access; and the intellectual rewards of collaboration and its costs. On the grandest

level, critical contribution helps students gain the confidence to contribute meaningfully to an aggregated, virtual, and actual global network and community.

### **MOOCs and the Status Quo**

Recently, there has been a lot of hype about a new form of education as the first true intervention into traditional education for a digital age. I refer to massive open online courses, or MOOCs. Stanford's Coursera and the Massachusetts Institute of Technology and Harvard's edX, for example, have announced that their aim is to reach a *billion* learners. Anyone in the world with an Internet connection, they insist, will be able to register for a class exactly like those now taught on campus at these distinguished universities. Their pronouncement about previously never imagined avenues of access to elite education is being touted as revolutionary.

But is it? Right now, MOOCs are seen as the great disrupter. I contend that MOOCs are having such an impact now because, structurally, they disrupt the *least* about higher education. Harvard and Stanford videotaping their most famous professors and delivering that form of talking heads / "sage on the stage" education to the world's masses is *not* a paradigm shift, especially when those sages are disproportionately tenured white male high-status professors in traditional disciplines. In fact, the gender numbers are significantly worse than *Wikipedia's*, and the gender and racial representation of the professors chosen to teach these prestige MOOCs is worse than at the brick-and-mortar universities themselves.

There are other issues. Most MOOCs do not invite students to contribute their knowledge or find new ways for their participation to count in the manner of participatory knowledge sites. Nor do MOOCs guard students against the dystopic possibilities of open-access surveillance of the kind that Jaron Lanier, Internet pioneer turned Jeremiah, warns us about: a world where those in power—such as those who run commercial websites or those who support MOOCs—can exploit their access to our individual data. Billions of learners? Or billions of potential programmers being trained as an outsourced and expendable cheap global labor force, manipulated by the new global "One Percent"?

If we who are dedicated to the mission and principles of higher education are really thinking altruistically, not cynically or purely commercially, about educating billions of those who cannot afford an elite university education, then we should educate the whole person. Our goal should be to help train engaged, enlightened citizens who can make informed decisions and take collective action at the ballot box or in the streets about, say, gang rape in Delhi or assuaging hunger in Darfur or curtailing gun violence in elementary schools in Connecticut.

This requires a global canon and decentered perspectives, but, so far as I see now, most of our MOOC sages are teaching the Western Great Books to billions of learners, preserving the Eurocentric calculus of Leibniz and Newton and Columbus. To consolidate and disseminate imperial knowledge even as it is being transformed by global participation constitutes, to my mind, intellectual theft, not free education.

In 2013 we should not just be massively scaling an outmoded model of education. We should be massively remodeling our institutions for contributive, connected, participatory learning.

If we could truly reimagine the university in view of new avenues of access, to me the liberal arts would not be separate from technology but would be intrinsic to understanding the human and social context of knowledge making in the twenty-first century. I've written elsewhere about our need to rethink general education and the role of the humanities as a "start-up curriculum" for a resilient global citizenship, with the stress on Félix Guattari's notion of "resilience" and the "three ecologies" of mind, society, and the environment all interacting together. These three conditions of virtual knowledge ecologies should infuse every aspect of a revitalized university.

We are in a fraught and transitional moment in higher education. With MOOCs, we are just beginning to explore new possibilities for online learning. If MOOCs push academics to rethink what we mean by learning and what we want from a university, they have the potential to help us truly transform higher education for the digital age as dramatically as the research university transformed it for the industrial era. There are many pitfalls, of course. The radical decline in funding for public education that has students at state universities now funding over half the costs of the universities through tuition exacerbates the income disparity that grows ever more extreme in this country: as the incomes of top earners have increased 275 percent since the late 1970s, those of the middle 60 percent have increased only 40 percent and those of the bottom 5 percent not at all. Other developed nations have also experienced income disparities but typically not as extreme as those in the United States. A college education is no longer the key to mobility but, given the reductions in funding and increasing student debt, more and more the index of an unequal society, with elite universities catering ever more to the global One Percent. Will MOOCs be a countering force or simply another contributing factor?

These questions all remain in flux, but until academics see their role in the structural and intellectual issues of higher education today, we cannot begin to think these through. MOOCs are by no means the answer to the high cost of a

university education. Neither are MOOCs responsible for everything threatening the university today. The future of higher education requires a paradigm shift. This change in direction is not simply a matter of moving the goalposts but, rather, requires us to think seriously and with new data, insights, and goals, about the university we want and want to be part of.

First and foremost, we in the world of education need to be rethinking our responsibility to students starting college now, most of whom were born after the birth of the Internet. They don't care about whether the world worked "better" or "worse" before they were born—nor should they. They have to figure out a way to get the best tools possible to succeed in the world they must navigate as independent adults. It is our mission to help in that process. Right now, in MOOCs and in our brick-and-mortar classrooms, we're mostly doing a good job preparing students for the industrial age labor market—not to be engaged and resilient contributors in a global, connected world.

I hope that my fellow educators will be wise and forceful in helping to reconceive the shape and dimensions of higher education for the world we live in now. It is incumbent upon us to think not just about "massively" scaling our courseware but also about reshaping it "meaningfully." That's the challenge and the opportunity of higher education today.

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