

The Classroom or the World Wide Web? Imagining the Future of Learning Institutions in a Digital Age

The Classroom and the World Wide Web

Modes of learning have changed dramatically over the past two decades—our sources of information, the ways we exchange and interact with information, how information informs and shapes us. But our schools—how we teach, where we teach, who we teach, who teaches, who administers, and who services—have changed mostly around the edges. The fundamental aspects of learning institutions remain remarkably familiar and have done so for something like two hundred years or more. Ichabod Crane, that parody of bad teaching in Washington Irving’s classic short story “The Legend of Sleepy Hollow” (1820), could walk into most college classrooms today and know exactly where to stand and how to address his class.

If we are going to imagine new learning institutions that are not based on the contiguity of time and place—*virtual* institutions—we have to ask, what are those institutions and what work do they perform? What does a virtual learning institution look like, who supports it, what does it do? We know that infor-

mal learning happens, constantly and in many new ways, because of the collaborative opportunities offered by social networking sites, wikis, blogs, and many other interactive digital sources. But beneath these sites are networks and, sometimes, organizations dedicated to their efficiency and sustainability. What is the institutional basis for their persistence? If a virtual site spans many individuals and institutions, who or what supports (in practical terms) the virtual site and by what mechanisms?

Our argument here is that our institutions of learning have changed far more slowly than the modes of inventive, collaborative, participatory learning offered by the Internet and an array of contemporary mobile technologies. Part of the reason for the relatively slow change is that many of our traditional institutions have been tremendously successful, if measured in terms of endurance and stability. It is often noted that, of all existing institutions in the West, higher education is one of most enduring. Oxford University, the longest continuously running university in the English-speaking world, was founded in the twelfth century.⁴ Only the Catholic Church has been around longer and, like the Catholic Church, universities today bear a striking structural resemblance to what they were in medieval times. As is typically the case in the present, the medieval university was a separate, designated, physical location where young adults (students) came to be taught by those, usually older and more experienced, who were authorized (scholars, professors, dons) to impart their special knowledge, chiefly by lecturing. Over the years, such features as dormitories, colleges, and, later, departments were added to this *universitas* (corpora-

tion). The tendency toward increasing specialization, isolation, departmentalization, and advanced (graduate and professional school) training developed in the wake of the Enlightenment, gathering steam through the nineteenth and into the twentieth century.

Given this history, it is certainly hard to fathom something as dispersed, decentralized, and virtual as the Internet being a learning institution in any way comparable to, say, Oxford. We know, given these long histories, what a learning institution is—or we think we do. But what happens when, rivaling formal educational systems, there are also many virtual sites where learning is happening? From young kids customizing Pokémon (and learning to read, code, and use digital editing tools), to college students contributing to Wikipedia, to adults exchanging information about travel, restaurants, or housing via collaborative sites, learning is happening online, all the time, and in numbers far outstripping actual registrants in actual schools. What's more, they challenge our traditional institutions on almost every level: hierarchy of teacher and student, credentialing, ranking, disciplinary divides, segregation of "high" versus "low" culture, restriction of admission to those considered worthy of admission, and so forth. We would by no means argue that access to these Internet sites is equal and open worldwide (given the necessity of bandwidth and other infrastructure far from universally available as well as issues of censorship in specific countries). But there is certainly a greater degree of fluidity and access to participation than at traditional educational institutions.⁵ So we re-ask our question: Are these Internet sites "learning institutions"? And, if so, what do these institutions

tell us about the more traditional learning institutions such as schools, universities, graduate schools?

One of the best examples of a virtual learning institution in our era is Wikipedia, the largest encyclopedia compiled in human history and one “written collaboratively by volunteers from all around the world.”⁶ Sustaining Wikipedia is the Wikimedia Foundation, Inc., with its staid organizational charts and well-defined legal structures. What is the relationship between the quite traditional nonprofit corporation headquartered in San Francisco and the free, open, multilingual, online, global community of volunteers? Is the “institution” the sustaining organization, the astonishing virtual community, or the online encyclopedia itself?

When considering the future of learning institutions in a digital age, it is also important to look at the ways that digitality works to cross the boundaries within and across traditional learning institutions. How do collaborative, interdisciplinary, multi-institutional learning spaces help to transform traditional learning institutions and, specifically, universities? For example, how are the hierarchies of expertise—the ranks of the professoriate and also the divide of undergraduates, graduate students, and faculty (including adjunct faculty, tenure-track junior faculty, tenured, distinguished, and emeriti faculty)—supported and also undermined by new digital possibilities? Are there collaborative modes of participatory learning that help to rethink traditional pedagogical methods? And what might learning institutions look like—what *should* they look like—given the digital potentialities and pitfalls at hand today?

We are concerned to conjecture about the character of learning institutions and how they change, how they change those who belong to them, and how people can work together to change them. Our primary focus is higher education. It is daunting to think that universities have existed in the West since medieval times and in forms remarkably similar to the universities that exist today. Will they endure for hundreds of years more even as learning increasingly happens virtually, globally, and collaboratively? It is our hope that thinking about the potential of new ways of knowing might inspire the revitalization of those institutions of advanced formal learning.

Participatory Learning

A key term in thinking about these emergent shifts is *participatory learning*. Participatory learning includes the many ways that learners (of any age) use new technologies to participate in virtual communities where they share ideas, comment on one another's projects, and plan, design, implement, advance, or simply discuss their practices, goals, and ideas together.

This method of learning has been promoted both by HASTAC and by the John D. and Catherine T. MacArthur Foundation's Digital Media and Learning Initiative. Participatory learning begins from the premise that new technologies are changing how people of all ages learn, play, socialize, exercise judgment, and engage in civic life. Learning environments—peers, family, and social institutions (such as schools, community centers, libraries, museums, even the playground, and so on)—are changing as well. The concept of participatory learning is very

different from “IT” (Instructional Technology). IT is usually a toolkit application that is predetermined and even institutionalized with little, if any, user discretion, choice, or leverage. IT tends to be top-down, designer determined, administratively driven, commercially fashioned. In participatory learning, outcomes are typically customizable by the participants.

Since the current generation of college student has no memory of the historical moment before the advent of the Internet, we are suggesting that participatory learning as a practice is no longer exotic or new but a commonplace way of socializing and learning. For many, it seems entirely unremarkable.⁷ Global business more and more relies on collaborative practices where content is accretive, distributed, and participatory. In other areas too—from the arts to the natural and computational sciences and engineering—more and more research is being enacted collaboratively. A *New York Times* article from 2008 even suggested that a future Nobel Prize winner might not be an oncology researcher at a distinguished university but a blogging community where multiple authors, some with no official form of expertise, actually discover a cure for a form of cancer through their collaborative process of combining, probing, and developing insights online together.⁸

Participatory learning is happening now—not in the future, but now. Those coming into our educational system rely on participatory learning for information about virtually everything in their lives. Adults, too, turn first to the Internet and the “wisdom of crowds” and “smart mobs” to help them make decisions about which car to buy, which cell phone service to use, which restaurants to frequent, and even which form of

heart surgery promises the best results with the least risk. Business and other professions turn more and more to collaborative learning forms. Again, this is not the future. This is the condition of life now, in 2009, for a majority certainly in the global north but increasingly through the use of mobile technologies in the global south, too.

This puts education and educators in the position of bringing up the rearguard, of holding desperately to the fragments of an educational system which, in its form, content, and assessments, is deeply rooted in an antiquated mode of learning. Every university in the global north, of course, is spending large sums of money revamping its technology offerings, creating great wired spaces where all forms of media can be accessed from the classroom. But how many have actually rethought the modes of organization, the structures of knowledge, and the relationships between and among groups of students, faculty, and others across campus or around the world? That larger challenge—to harness and focus the participatory learning methods in which our students are so accomplished—is only now beginning to be introduced and typically in relatively rare and isolated formats.

Most university education, certainly, is founded on ideas of individual training, discrete disciplines, and isolated achievement and accomplishment. What we want to ask is how much this very paradigm of individual achievement supports the effective learning styles of today's youth and prepares them for increasingly connected forms of civic participation and global commerce—or how much it is at odds with contemporary culture. That needs to be stated more forcefully: The future of con-

ventional learning institutions is past—*it's over*—unless those directing the course of our learning institutions realize, now and urgently, the necessity of fundamental and foundational change.

Most fundamental to such a change is the understanding that participatory learning is about a process and not always a final product. We are concerned here not just with a prognostication about future institutions for learning, but with considering, even with projecting, how learning happens *today*—not in some distant utopian or dystopian future.

As noted above, we posted an early draft of this essay on Commentpress, the Web-based tool developed by the Institute for the Future of the Book as a variation of the blogging software, Wordpress. Released in 2007, Commentpress allows an online text to be “marked up” in a digital version of margin notes. In doing so, we made authorship a shared and interactive experience, in which we were able to engage in online conversation with those reading and responding to our work.⁹ That is a version of participatory learning.

Box 1

The Institute for the Future of the Book

Our tools of learning are shifting increasingly from the printed page to digital media. The Institute for the Future of the Book (<http://www.futureofthebook.org/>) takes as its mission the chronicling of this shift and the development of digital resources to promote innovative reimaginings of the book.

The Future of Learning Institutions in a Digital Age

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OVERVIEW

I. Overview

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1 *Learning is always embedded in cultural environments. Learners carry their cultural commitments with them. The most effective learning strategies pay keen attention to these conditions, shaping strategies to draw on the mobilizing possibilities of learning cultures and environments. Cultural conditions have shifted in the wake of new digital technologies and the possibilities they have unleashed. These cultural shifts pose significant challenges for learning. It is time to reconsider the nature of learning institutions—what they look like, how they operate, and how they can be transformed and supported in new distributed configurations. We offer here protocols for networked learning and institutional emergence in the age of digital culture.*

...

2 "Common culture" is dead, claims *Wired* magazine editor Chris Anderson in *The Long Tail: Why the Future of Business is Selling Less of More* (2006), the smash bestseller of summer 2006. Anderson argues that the effect of the Internet has been to proliferate the possibilities of preference expression and consumer choice. One can no longer assume that all consumers want the same thing, not when the Internet exposes any individual to limitless niche markets and a global range of product selection, all communicated through interconnected (but distributed) social networks. In contrast to the "Pareto tails" of the standard statistical distribution in the "common culture" regime (where twenty percent of all products account for eighty percent of all revenue), on the Internet *ninety-eight percent* of all product offerings are chosen by someone, thus

ALL COMMENTS (25) PAGE COMMENTS (7) PARAGRAPH COMMENTS (18)

Comments: All (Paragraph & Page)

Paragraph | Page | All | Write | ?

DMSILVER SAYS:
i'd suggest replacing Friendster with facebook.
JANUARY 23RD, 2007

CHRISTINE ALFANO SAYS:
I strongly agree. Facebook has completely eclipsed Friendster as the tool of choice for students ... in fact, since Facebook expanded to non-academic users in Fall 2006, you could argue that it actually is in direct competition with Friendster.
FEBRUARY 13TH, 2007

A sample screenshot from the first draft of the Future of Learning Project

Participatory learning is not simply about interaction (we all have plenty of that in our lives) but of interaction that, because of issues of access, means that one is co-creating with myriad people who are strangers and who can remain anonymous. People can respond candidly. From such a process, one learns and continues to learn from others met (if at all) only virtually, whose institutional status and credentials may be unknown.

With participatory learning, the play between technology, composer, and audience is no longer passive. Indeed, participa-

tory learning blurs these traditional lines.¹⁰ That blurring raises important questions for those trained as academics under a different set of premises. In the current academy, virtually everything in a scholar's life is based on peer review and institutionally ordained authority. Who counts as a "peer" is carefully defined and which institution counts as a peer institution is also certified through accreditation and other ranking practices. Within those sets of rules, the lines of authorship and authority are clearly delineated. There is a hierarchy within the professoriate that models a similar hierarchy of teacher and student. With participatory learning these conventional modes of authority break down. In our own case of composing the first outline drafts of this document, we found the process of making our ideas accessible to anyone who wished to comment to be sometimes frustrating, occasionally embarrassing (no one likes to be called out in public), but, in the end, intellectually exhilarating in both content and in form.

Remix Authorship

As often happens in the history of technology, a significant new device—such as a breakthrough in new hardware or software—has an impact on a variety of the social and political conditions around it. These impacts may be large or small, general or local. On the more local end of the spectrum, in the case of the Commentpress tool, our concept of publishing changed, as did our concept of authorship over the course of our experiment with collective feedback and revision. Is the first or the final version of our text the "published" version of the essay?

Obviously the answer has to be “both.” The concept of authorship (a subject to which we will return) also needs to be reassessed because of the interactive publishing process.¹¹ As any historian of the book knows, you cannot change one part of the publishing circuit without shifting the dynamics among all the other parts of the process. All aspects of publishing are interconnected, from the materiality of production (books or Web sites) to distribution networks (bookstores or downloads), to readership and even such foundational concepts as “literacy” (a term that, with participatory learning, must include digital literacy).¹² These affect content, too.

The implications of the Commentpress interaction are fascinating for thinking about the future of learning institutions. Anyone could join the Commentpress Web site and make notes on our report, without the benefit of any specific institutional membership. As long as they heard about the project from some source—*networking* is another crucial component of participatory learning that we will return to later—they could register and comment. Given that one could log on from an Internet cafe in Thailand or from a graduate research program in Boston, this process offered important issues of access, authority, and anonymity. It also offered the retreat, if not the vanishing altogether, of traditional institutional structures and implicit notions of institutional membership and hierarchy marking most forms of feedback to scholarly work—such as shared membership in a classroom, an academic department, or a professional association. Participation required only access to a computer and enough literacy to be able to read, comprehend, respond to, and influence what we wrote. In many ways, the

Institute for the Future of the Book is an extension of the first subscription libraries. Ben Franklin established the Library Company of Philadelphia in 1731 to give more readers access to more kinds of knowledge. The Internet, surely, has redefined access (and its limits) for the twenty-first century. It has also dramatically reordered, if not undermined, traditional hierarchical orders of knowledge authority based on domain expertise sanctioned by institutional license.

Indeed, in a magisterial article about new technologies, the distinguished historian of the book (and now the director of Harvard University's Libraries), Robert Darnton, has suggested that we live in not the first but actually the fourth great Information Age. The previous ones he defines as the invention of writing in approximately 4000 BC, the turn from the scroll to the codex in the third century AD, the invention of the printing press (by the Chinese in 1045 and in the West, by Gutenberg, in 1450), and now, the invention of the Internet. Of all of these, Darnton argues, the Internet has had the fastest and the most geographically extensive effect on every aspect of knowledge making and all of the arrangements of life around how we make, exchange, share, correct, and publish our ideas.¹³ It has also shifted both the perception and the reality of who makes knowledge, how it is authorized and legitimated.

And yet, to return to our central point, our learning *institutions*, for the most part, are acting as if the world has not suddenly, irrevocably, cataclysmically, epistemically changed—and changed precisely in the area of learning. We are not clear if this is so much an ostrich time for learning institutions or (to use a different animal metaphor) a deer-in-the-headlights time.

In any case, most institutions are stuck in an epistemological model of the past, even as they pour tens or even hundreds of thousands of dollars into IT that promises a technological future. Yet, we are no longer talking about the future. Institutional change is happening as we write.

The Challenge

No one (except perhaps politicians) promotes change for the sake of change. Implicit in a sincere plea for transformation is an awareness that a current situation needs improvement. When we advocate institutional change for learning institutions, we are making assumptions about the deep structure of learning, about cognition, about the way youth today learn (about) their world in informal settings, and about a mismatch between the excitement generated by informal learning and the routinization of learning so common to many of our institutions of formal education. We advocate institutional change because we believe our current formal educational institutions are not taking enough advantage of the modes of digital and participatory learning available to students today.

Youth who learn via peer-to-peer mediated forms may be less likely to be excited and motivated by the typical forms of learning than they were even a decade ago. Too many conventional modes of learning tend to be passive, lecture driven, hierarchical, and largely unidirectional from instructor to student. As Wheat (logon name) notes on the Institute of the Future of the Book, "open-ended assignments provide the opportunity for creative, research-based learning."¹⁴ And yet in the vast major-

ity of formal educational settings, partly as a concomitant of cutbacks to education resulting in increased class size but also partly a function of contemporary reified culture, the multiple-choice test has replaced the research paper or more robustly creative group-produced projects.

On the K–12 level (primary and secondary public schools), governmentally mandated programs, including those such as “No Child Left Behind,” tend overwhelmingly to reinforce a form of one-size-fits-all education, based on standardized testing. Call this cloned learning, cloning knowledge, and clones as the desired product. Such learning models—or “cloning cultures”—are often stultifying and counter-productive, leaving many children bored, frustrated, and unmotivated to learn.¹⁵

The deplorable U.S. high school dropout rates now amount to close to 35 percent of those who begin public schools in the United States.¹⁶ Of special urgency is the surging gap between the wealthy and the poor, a gap that correlates in both directions with educational levels.¹⁷ Youth from impoverished backgrounds are statistically most likely to drop out of school; high school dropouts earn less than those with a diploma, and significantly less again than those with a university degree. Incarceration rates, which have soared more than tenfold since 1970, also correlate closely with educational failure and impoverishment. Seventy-five percent of those imprisoned tend to be illiterate, earning under \$10,000 per year at the time of arrest.¹⁸ Currently, according to Human Rights Watch, the United States has the highest incarceration rate of any nation on earth, higher even than China, with 762 of every 100,000 U.S. residents currently in jail (as compared to incarceration rates in the United

Kingdom of 152 per 100,000 residents, and, in Canada and France, 108 and 91, respectively).¹⁹

In the United States, incarceration correlates with poverty and digital access correlates with educational opportunity and wealth. Despite government pronouncements to the contrary, “digital divide” is not just an old concept but a current reality.²⁰ Access to computers remains unevenly distributed. In our comments about formal education, implicit is an awareness that even the most basic resources (including computers) are lacking in the nation’s most impoverished public schools as well as in the nation’s poorest homes.

Wealth, formal education, race, and gender are important interacting factors in the certification of what constitutes “merit” and “quality.” Nevertheless, and even granting the digital divide, there is a generational shift in the kinds of learning happening by those both living above the poverty line and those more impoverished youth accessing such media in perhaps more limited form (often through community centers and libraries). An increasing number of those born after 1983 (the desktop) and 1991 (the Internet) learn through peer-to-peer knowledge networks, collaborative networks, and aggregated private and open source social spaces (from MySpace and Facebook to del.icio.us).

Given that the entering college class was born in 1989 or 1990, we are talking about a cultural change that touches every aspect of the educational system as well as nonformal learning environments for all ages. The so-called “Millennials” are, in fact, not the only age group being transformed by digital technologies. We note in passing that the average age of a *World of Warcraft* game player is 28.²¹

Because of the Internet, more and more choices are available to the public, in everything from consumer products to software, social networks, modes of play, knowledge/data repositories, and cultural archives. While contributors to Wikipedia are just 5 percent of users, that is a far larger contributing base than to traditional encyclopedias, and many more consult Wikipedia on a daily basis than they ever consulted print-based encyclopedias. Learning, too, has a “long tail,” where more and more is available virtually, to potentially much wider, more distributed, and diverse ranges of people.

We do not claim to have solutions for these massively complex social issues, nor do we claim to understand fully the relationships between and among the various developments we have listed. However, we do believe the opportunity now exists to mobilize educators and learners to more energetic and productive learning ends. Interactive technologies and collaborative learning have inspired enormous excitement, and contemporary youth exhibit great facility in negotiating the use of new media. We believe, accordingly, that learning institutions can be developed to do a better job of enlisting the imagination of youth and to use the specialized interests of young people for the purposes of placing in practice wise and rigorous forms of knowledge sharing.

To accomplish this end will require that educators rethink their most cherished methodologies and assumptions. It is not easy to rethink knowledge in the Net Age.²² As open source legal theorist and activist James Boyle notes in his witty and terse article “A Closed Mind about an Open World,” we have been conditioned by a confluence of factors, economic and social,

political and cultural, to acquire an “openness aversion.”²³ The familiar is safe, easy, reliable. Boyle suggests that aversion to openness—to be disposed against the challenge of the unforeseen—is an actual cognitive bias that leads us to “undervalue the importance, viability and productive power of open systems, open networks and non-proprietary production.” To overcome this bias requires that knowledge producers (all of us involved in the practices of teaching, in whatever current institutional configuration) rethink every aspect (from economic theory to citation form) of what we think of as “knowledge production.”

Digital Presence and Digital Futures

Digital technologies increasingly enable and encourage social networking and interactive, collaborative engagements, including those implicating and impacting learning. And yet traditional learning institutions, whether K–12 or institutions of higher learning, continue to privilege individualized performance in assessments and reward structures. Born and matured out of a century and a half of institutional shaping, maturing, and hardening, these assessment and reward structures have become fixed in place. But they now serve also to weigh down and impede new learning possibilities.

Digital technologies have dramatically encouraged self-learning. Web interfaces have made for less hierarchical and more horizontal modes of access. The Web has also facilitated the proliferation of information, from the inane and banal to the esoteric and profound, from the patently false, misleading, even

(potentially) dangerous and destructive to the compelling, important, and (potentially) life-enhancing and life-saving. But the relative horizontality of access to the Web has had another surprising effect: it has flattened out contributions to knowledge making, too, making them much less the function of a credentialed elite and increasingly collaboratively created.

What are the implications of this dual horizontality—of access and contribution—for learning, then? It is to that question we turn next.