1 Introduction and Overview: The Future of Learning Institutions in a Digital Age

A university classroom. The instructor is reading aloud from a passage in the assigned work for the week. He looks up to find his students all deeply engrossed. Their rapture, alas, is not with him but with their laptop screens, their attention worlds away.

Later that day, the professor fires off an email to his colleagues suggesting that laptops be banned from the classroom because of incidents like this.

Response one: This is an outrage, more and more familiar. Students are distracted by what their laptops make available to them, their attention too readily drawn away from the class activities and lesson.

Response two: Perhaps a professor shouldn't be sitting at the desk reading out loud from a book.

There may well be merit in each of these responses. At the very least, each response deserves consideration. The latter response raises questions about the book itself as a technology. It did not always exist, after all. But the history and form of teaching methods warrant renewed consideration, too. Why is a professor at the front of the classroom at all? Why is he reading out loud? What are the forms of learning implicit in such an act, and how do those forms edify our concept of learning,

education, and the whole process of communicating ideas? How do laptops change the way we learn? And how *should* they change the way we teach?

These are the kinds of questions that every educator should be thinking about today. 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, whom 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 been for around two hundred years or more. Ichabod Crane, that parody of bad teaching in Washington Irving's classic short story "The Legend of Sleepy Hollow",[1] could walk into most college classrooms today and know exactly where to stand and how to address his class.

There are other questions, too. If we are going to imagine new learning institutions that are not based on the contiguity of time and place—*virtual* institutions—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 informal 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?

Conventional 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. This slow pace of change makes us think we know 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 kids contributing to Wikipedia, to adults exchanging information about travel or restaurants or housing via collaborative sites, learning is happening online, all the time. 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."[2] 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 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 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, and tenured and distinguished faculty)—supported and also undermined by new digital possibilities? Are there collaborative modes of digital learning that help us 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?

This book addresses these intertwined questions and the myriad implications they provoke; the book is neither utopian in its prognostications of the future, nor bleak in its assessment of the present, nor nostalgic in its construction of the past. Rather, the book assumes that the future will be as complicated and contradictory as is the present (and as the past has always been). Similarly, its focus is not on the intrinsic value of new technologies but, rather, on how we can most creatively explore new technologies to better understand what it means to learn. As technologies change, potentials and problems also shift, even as some cultural, psychological, educational, social, and political values remain consistent, though not necessarily constant.

This book investigates the character of learning institutions and how they change, how they change those who belong to them, and how we can work together to change them. The primary focus is on 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? Will thinking about the potential of new ways of knowing inspire us to revitalize those institutions of advanced formal learning?

Digital Learning

A key term in this project is *digital learning* or, as it is sometimes called, *participatory learning*. In this form of learning, many contribute to a final product. The Institute for the Future of the Book's collaborative site, for example, on which the first draft of this project was posted and to which many responded and engaged in dialogue, would be an example of digital, participatory learning.

Digital, participatory learning has been promoted both by the Humanities, Arts, Science, and Technology Advanced Collaboratory (HASTAC) and by the John D. and Catherine T. MacArthur Foundation's Digital Media and Learning Initiative. Digital 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 (e.g., schools, community centers, libraries, museums)—are changing as well. The concept of digital learning is different from instructional technology (IT), which is usually a toolkit application that is predetermined and even institutionalized with little, if any, user discretion, choice, or leverage. It also tends to be top down, designer determined, administratively driven. In digital learning, outcomes typically are customizable by the participants. When the draft essay was placed on CommentPress, the Web-based tool developed by the Institute for the Future of the Book, authorship became a shared and interactive experience in which the essayists engaged in online conversation with those reading and responding to the work (figure 1.1).[3] That is a version of digital learning.

Box 1

The Institute for the Future of the Book

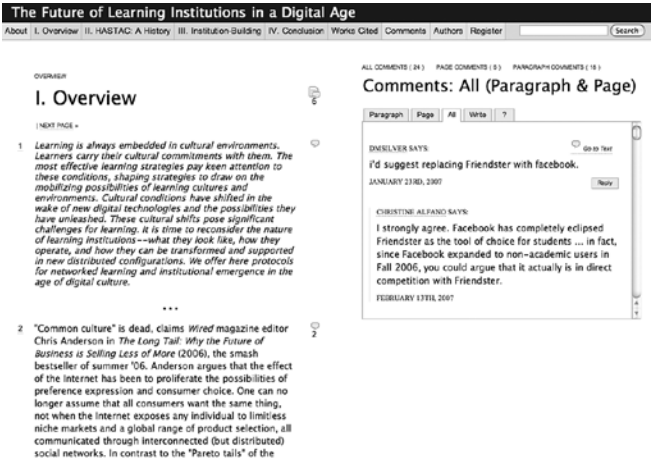

Figure 1.1

Screenshot of the first draft of the *Future of Thinking* project (http://www.futureofthebook.org, accessed on August 13, 2008).

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. In 2007, the Institute released free, open-ended software called CommentPress (a variation of the blogging software, WordPress) that allows an online text to be "marked up" in a manner reminiscent of margin notes.

Digital learning is not simply about interaction (we all have plenty of that in our lives) but of interaction that, because of issues of access, involves cocreation with myriad strangers who have the anonymity to respond as they wish, candidly. From such a process, we learn and continue to learn from people met only virtually (if at all) and whose institutional status and credentials may be unknown.

With digital learning, the play between technology, composer, and audience is no longer passive. Indeed, digital learning begins to blur these traditional lines. This does not happen often in a scholar's life, where almost everything is based on peer review and institutionally ordained authority, all within certain professional norms. In conventional learning institutions, the lines of authorship and authority are clearly delineated, and the place of teacher, student, and technology are well known. With digital learning, these conventional modes of authority break down. As a model, though, the pressing question is that of the sustainability of conventional modes of learning. It challenges us accordingly to think of new and more compelling modes of learning practice and process that can be pressed into productive play in productive ways.

Remix Authorship

As has often happened in the history of technology, a significant breakthrough in hardware or software has an impact on social and political conditions. These impacts may be large or small, general or local. On the local end of the spectrum, in the case of the CommentPress tool, the concept of publishing changed, as did the concept of authorship. Is the first or the final version of the text the "published" version of the essay? Are both? The concept of authorship (a subject to which we

return in chapter 3) must be reassessed because of the interactive publishing process.[4] As any historian of the book knows, one cannot change a part of the publishing circuit without changing all others, from the materiality of its production (books or Web sites) to its distribution and its readership (which brings into question issues ranging from access to literacy).[5]

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 the essay, without the benefit of any specific institutional membership. Anyone who heard about the project from some source—*networking* is another crucial component of digital learning that we return to in chapter 3—could register and comment. Given that someone could log on from an Internet café in Thailand or from a graduate research program in Boston, this process raised 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 in CommentPress required only access to a computer and enough literacy to be able to read, comprehend, and respond to the essay. In many ways, the Institute for the Future of the Book is an extension of the first subscription libraries. Benjamin Franklin established the Library Company of Philadelphia in 1731 to give readers broader access to knowledge. The Internet, surely, has redefined access (and its limits) for the twenty-first century.

The process of interactive authorship and readership seems different from previous forms, such as coauthored books and book clubs, especially in its institutional implications. Hybrid

forms of authorship and production resemble other hybridized forms of cultural expressions emerging at this particular historical moment. Sampling and remixing are now part of almost every aspect of expressive culture, from music and art to fashion and architecture. Here, too, authorship is remixed in the sense of transforming working comments, insights, and critical remarks from CommentPress interlocutors into revisions of this book. Remix authorship (like all collaborative forms) comes with its attendant issues of intellectual property and credit, which are explored in chapter 2. Intriguingly, the more collaborative the project, the more we must think about individual credit, even in cases such as this where profit is not an issue.

One purpose of this book is to document these forms of production and the features that seem unique to them, for they both fashion and reflect emergent institutional learning practices. New technologies make possible instantaneous revision, repositioning, reformulation. There are clearly benefits to this, though there may be drawbacks, too. If we do not hesitate to reword, we likewise may not take the time to reflect. Analyzing the transformations that new technologies have made to modes of learning requires looking honestly at the pros and cons. The moment is fresh enough that it is still visible to us, and we can influence these developments before they settle in to become routine, the assumed, the given.

This book's form of remix authorship has many traditional elements instructive about the nature of learning as well. Someone, individually or collectively, must take responsibility for the product, for the learning environment, the technologies, the content. In this book, two authors have made the final "call" about what to include and what to exclude from the feedback and the process of soliciting feedback itself. Like teachers, the authors assumed responsibility for organizing the forums

and choosing the participants who offered insights. Those choices are not made in a vacuum, absent a charge or parameters of writing or learning, of subject matter and audience, of funding mandates and institutional review. This interactive form of research is different from the carefully hidden series of revisions that emerge in the public eye as a fully finished book, with the labor of its various readers, copy editors, and others acknowledged in a sentence, but, in a sense, banished from the final product. In other ways,the traditional sense of authorship was retained, since the authors sorted through the commentary and selected elements to include in the final book. Teachers and learners make similar selections about materials from input by others, with expertise and experience as guides.

Was this interactive writing process worth the effort? It has certainly been more work—not less—than a single-author production or a traditional coauthored work. Hidden behind the enterprise, for example, are the people at the Institute for the Future of the Book who wrote the software for the collaborative system and who maintained its efficient Web presence for the duration of the project. Not so hidden are the comments (for all the world to see) that range from castigations for misspellings (e.g., the first draft used "UTube" instead of "YouTube") to pointing out issues simply overlooked (e.g., libraries were omitted from the first draft) (figures 1.2 and 1.3). For most senior academics, warts are not noted quite so publicly. Yet, given the new worlds of discourse in the snarky blogosphere or on the irreverent Facebook "wall," perhaps we all must accept that we are in the midst of a change (yet again) in the status of the author, the teacher, and, indeed, the learner. The author may not be dead, as Roland Barthes first pronounced in 1978 in *Image-Music-Text*, but the author is now digital.[6] From the process, one learns not only content but form and voice, and

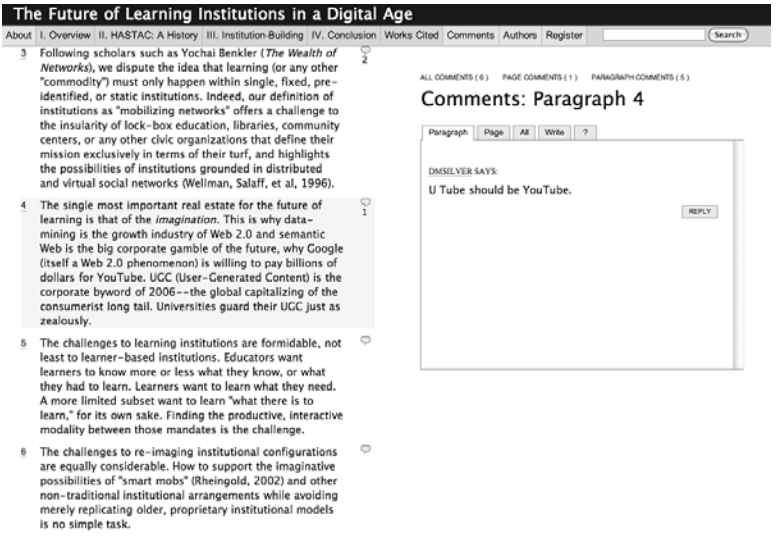

Figure 1.2
Screenshot of the Institute for the Future of the Book Web site (http://www.futureofthebook.org, accessed on August 13, 2008).

maybe even some dissociative distance from one's own still-in-process products. All of this is intrinsically *interesting.* And because it is, the process has been worth it. In many ways, the process has revealed the crucial features of the concept of digital learning that this book considers and promotes.

Likewise, this printed version is not final. As a product of Web 2.0 knowledge formation, it is open-ended and revisable. An electronic version of the book will remain on the HASTAC Web site, and comments will continue to be accepted. As with the previous comments, this is part of the enterprise of thinking collaboratively about the future of learning and its institutions.

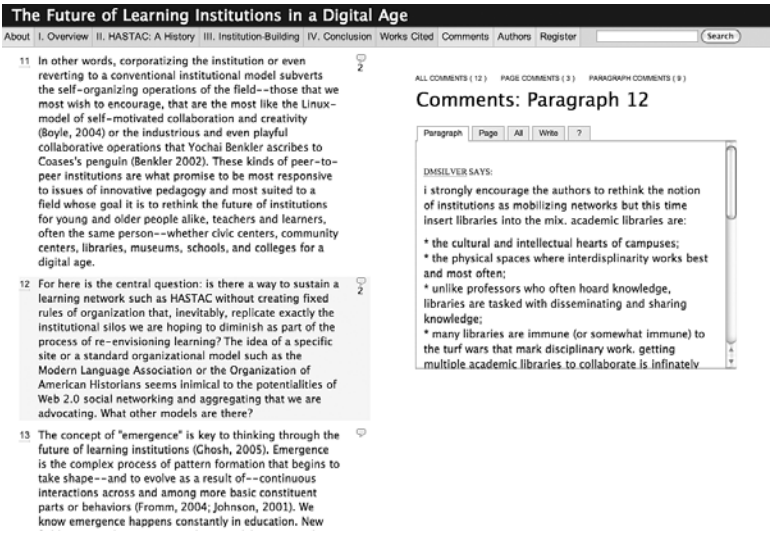

Figure 1.3
Screenshot of the Institute for the Future of the Book Web site, (http://www.futureofthebook.org, accessed on August 13, 2008).

Youth Access

This book addresses both formal and informal learning and educational environments. Although the chief focus is on college students and higher education, younger learners are also considered. For those who are still minors, there are many special issues of security and privacy that are relevant to digital production, networked circulation, and remix authorship. Digitality offers new possibilities for youth; there are also areas where guardianship and supervision are clearly necessary. There are issues of "protecting" digital youth where media hysteria creates, as much as it documents, a social problem.

Once there is open access (with no gatekeeper ensuring the participant is over 18 or accompanied by a parent or guardian), myriad new issues arise. Once kids can participate freely with adults in an atmosphere of anonymity, issues of credibility and vulnerability arise. We might not know whether a particularly salient remark was offered by a distinguished professor or a twelve-year-old (and does it matter?). We only know that the interaction helped us think through a thorny problem. And yet that anonymity might equally hide other vulnerabilities—of manipulation, enticement, attraction, indeed addiction—that young folk have not yet developed the judgment to recognize or resist.

For minors, all of the important and sensitive issues concerning access, privacy, and security for youth in a digital age take on special weight and force. Readers who are especially concerned with kids are referred to Bibliography II, an extensive collection of sources that might help guide teachers, parents, administrators, policymakers, researchers, teachers, and students (of any age). Bibliography II provides models and examples of innovative digital learning projects already underway for youth (some more successful than others). What is the complex relationship between access and protection when it comes to kids? Different digital learning environments and virtual worlds have addressed this issue, and some insights from those experiments are provided.

Mobilizing Networks

In thinking through new versions of digital learning, authorship, and participation in this book, new ideas of institutions are also explored. It is typical for social scientists to define an institution in terms of the structures and mechanisms of control, social

order, rules of regulation, and cooperation that govern the behavior of its members and that, sometimes, by extension, exert control or definition over those excluded from the institution's official membership. This book proposes a deliberately provocative alternative definition of *institution*: An institution as a *mobilizing network*.

This counterintuitive (and even cantankerous) definition is a way to rethink the limits of an institution and its potential. Given that the aim is to consider learning institutions for a digital age, what might follow from a definition of *institution* that emphasized its flexibility, the permeability of its boundaries, its interactive productivity, and its potential as a catalyst for change rather than its mechanisms of cooperation, order, control, and regulation? Is it possible to see institutions as mobilizing rather than restraining? Or even mobilizing *and* restraining?

Much of social science thought has gone into parsing out the guardian functions of institutions. What might follow from thinking about what flows into and out of institutions from other sources and the ways existing institutions themselves (sometimes unwittingly) produce or at least mobilize change? How can the digital connections that transcend the walls (literally and figuratively) of institutions enable us to transform some of the most bounded and frustrating aspects (the "silos") of institutions of higher learning? For example, we are all too familiar with the difficulties of teaching courses as intellectually complex as our digital era (the subject of chapter 4). It is not easy to circumvent departments, disciplines, schools, and the special prejudices held by each. In this grant-driven era in higher education, we also acknowledge the problem of writing a grant that transcends schools and departments. Who will

receive the income (the so-called indirect cost recoveries) from the grants when many contribute?

Chapter 5 offers an extended definition of institutions as *mobilizing networks* that is designed to help us move away from the frustrations of attempting to revolutionize institutions and, instead, to invigorate the concept of institutions by highlighting the fluid networks that operate within, through, around, across, and outside traditional boundaries of even the most solid and seemingly unchangeable institutions. This definition is a thought experiment. How can beginning with a counterintuitive definition help us rethink the institutions we belong to and envision the kinds of institutions we desire? If, at present, too many learning institutions pose obstacles to the free flow of thinking, to collaborative knowledge formation, and to interactive learning almost as formidable as the obstacles imposed by corporations and by governments, then how do we create free-flowing institutions?

This line of thought leads, once again, to a series of interconnected questions. How can the networked social relationships characteristic of digital worlds and peer-to-peer learning be supported by equally distributed institutional structures, by peer-to-peer institutions as innovative, flexible, robust, and collaborative as the best social networking sites? Is it possible for a successful peer-to-peer institution such as HASTAC to help lead a generation of scholars in the conception and creation of flexible institutions for youth (e.g., libraries, civic centers, community centers, schools) that take advantage of new digital forms of learning and self-organization that characterize everyday life and learning for many young people today?

In order to create a new field of digital learning, we must bring together research, knowledge, methodologies, and expertise from

radically distributed existing fields—from the media and design arts to history, sociology, communications, psychology, philosophy, education, policy studies, political science, the computational sciences, engineering, and all points in between. A field cannot exist without institutional grounding. But at what point do loose affiliations between and among those in different fields (what Harvard sociologist Mark Granovetter calls "the strength of weak ties"[7]) constitute the critical mass necessary for a new field with all of its apparatus—conferences, journals, networks of authorities, debates, theories, practices, pedagogies, and (meaningfully contentious) subfields? If we are moving toward distributed institutions—with peer-to-peer training, review, and certification—what can we do to support and sustain those institutions in creative new ways?

This book draws its strength from the richness of its sources. Feedback was gathered from the general public and from numerous leaders who have been instrumental in the development of new interdisciplinary fields. In the sciences, these fields include cognitive neuroscience, biomedical engineering, genomics, and bioinformatics. In the social sciences and the humanities, the fields include cultural studies, visual studies, African and African-American studies, film and media studies, postcolonial studies, queer theory, comparative literature, and gender and women's studies. Leaders were consulted individually and in groups in order to learn their histories and profit from their insights.

Second, the successes and shortcomings of the Humanities, Arts, Science, and Technology Advanced Collaboratory, the innovative peer-to-peer learning institution that was conceived of in 2002 and launched in early 2003, provided a wealth of data. A case study and a potential next-generation model, HASTAC is an

entirely voluntary consortium, a network of networks, with no dues, no written rules of association, no headquarters, and no formal organizational structure. Yet, its accomplishments to date include collaborative tool building, successful negotiation efforts (to ensure that the complex data needs of human and social sciences are included in national funding efforts of various kinds), research and development with leading scientific agencies, and collaborations with leading national supercomputing centers, as well as consulting with national and international agencies, and field-building educational efforts in collaboration with foundations, learning institutions, and corporations.

Although HASTAC is *voluntary*, it is not *without cost*. It receives significant support for core infrastructure from two established institutions, Duke University and the University of California. Without their investment in the digital future of learning, HASTAC would not have developed, let alone flourished and played the leadership role it has over the last several years. Additionally, support for various activities comes from the other member institutions—collaborations, conferences, workshops, and scholarships to undergraduate and graduate students. During 2006–2007, 80 institutions collaborated on an In|Formation Year, offering courses, seminars, lecture series, conferences, and public events, as well as rolling out new software and hardware, all supported in a distributed fashion by the individual institutions and then publicized centrally by HASTAC. These efforts also received significant foundation support—from Digital Promise, the National Science Foundation, and, most significant, the John D. and Catherine T. MacArthur Foundation.

As we consider the most visionary interdisciplinary and institutional projects, we also must reflect on the traditional funding institutions (i.e., state and federal granting agencies,

private foundations, and corporations) that help them to flourish. The relationship between virtual and traditional institutions can take many forms. For example, the John D. and Catherine T. MacArthur Foundation, one of the most respected private foundations in existence, had the boldness to invite HASTAC, a virtual institution, to administer its first open competition in Digital Media and Learning. In this instance, HASTAC's extensive virtual network of networks helped the MacArthur Foundation to extend its reach into new communities, and the support of the MacArthur Foundation helped HASTAC to flourish.

The collaboration between a virtual institution and a major private foundation resulted in the HASTAC/MacArthur Foundation Digital Media and Learning Competition (figure 1.4). The first competition was announced on August 14, 2007, with an application deadline of October 15, 2007. The extensive HASTAC communication network, in tandem with a $2 million prize and the impeccable reputation and reach of the MacArthur Foundation, turned out to be a winning combination. The competition received 1,010 final submissions, more than three times as many as the organizers expected, which suggested that this first competition should not be the last.[8] Those submissions tended to be radically cross-disciplinary and cross-institutional, often with complex collaborations of institutions of various sizes, kinds, and missions—collaborations of a kind that many people would have thought impossible even a year before. It is clear that something is happening. Maybe institutions *are* mobilizing networks.

Through the collaborative process of gathering responses to the first draft of this book and then by synthesizing these comments into a coherent analysis and action plan, partly stimulated by and symbolized by the HASTAC/MacArthur Foundation

Figure 1.4
Screenshot of the first Digital Media and Learning Competition (http://www.dmlcompetition.net, accessed August 13, 2008).

Digital Media and Learning Competition, peer-to-peer learning institutions and environments have been mobilized, encouraged, and celebrated in a way that addresses the future of lifelong learning and the institutions that will serve and sustain them in a digital age.