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History, Interactive Technology and Pedagogy: Past Successes and Future Directions

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Article abstract

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Abstract

Based on a keynote presentation at the 2012 Canadian Historical Association conference, this paper surveys the state of digital technology and its impact on academic publication and teaching in the contemporary university. Focusing on the dramatic rise of the Digital Humanities in the last few years, the paper examines alternative forms of peer review, academic scholarship and publication, and classroom teaching as they have been reshaped by the adoption of a variety of digital technologies and formats, including open-access, online peer reviewing, use of databases and visualization techniques in humanities work, online journal publication, and the use of blogs and wikis as teaching tools. Examining the digital production and education work of the American Social History Project at CUNY, which he co-founded, and the Interactive Technology and Pedagogy doctoral certificate program that he heads at the CUNY Graduate Center, the author discusses a range of digital projects and approaches designed to improve the quality of teaching and learning in college classrooms.

Résumé

Tiré du discours liminaire présenté à la Réunion annuelle de la Société historique du Canada en 2012, cet article présente un aperçu de l'état de la technologie numérique et de son influence sur la publication et l'enseignement dans le monde universitaire contemporain. S'intéressant plus particulièrement au développement fulgurant des sciences humaines numériques au cours des dernières années, cet article analyse l'impact de l'adoption d'une panoplie de technologies numériques (incluant le libre accès, l'évaluation par les pairs en ligne, l'utilisation de bases de données et d'imagerie mentale en sciences humaines, la multiplication des revues

électroniques ainsi que l'utilisation des blogues et wikis comme outils pédagogiques) sur l'évaluation par les pairs, sur la recherche scientifique et la publication universitaire, ainsi que sur l'enseignement. Étudiant la production numérique et les travaux de l'American Social History Project de CUNY, qu'il a participé à créer, et le programme doctoral en Interactive Technology and Pedagogy, qu'il a dirigé à la faculté des études supérieures de CUNY, l'auteur discute de divers projets de numérisation et de différentes approches conçus pour améliorer la qualité de l'enseignement dans les salles de cours collégiales et universitaires.

The Canadian Historical Association's call for papers for its 2012 "Crossroads: Scholarship in an Uncertain World" conference included two questions that particularly resonated with me: Will technological change, spell the end of, traditional forms of teaching and scholarship? Are we currently standing at a key juncture in historical scholarship? I will attempt to address both of these anxiety-tinged questions in this paper and offer some possible answers to each.

Many university faculty members remain puzzled about the ways digital technologies of one sort of another are transforming (or perhaps have already transformed) our teaching and our academic scholarship. As academics, our individual and collective reactions to these prospective and actual technological transformations run the gamut from breathless techno-enthusiasm to brooding techno-phobia, with academic administrators tending to clump on the enthusiastic end of the spectrum and faculty members (usually those who can best be described as aging Baby Boomers) at the opposite extreme. I'm sure most of us in universities have encountered (or even personally embody) various individual examples at each of the extremes as well as many positions in between.

This is not surprising, given the fact that since the early 1990s (coincident with the emergence of the World Wide Web) we've experienced successive waves of enthusiasm for the next "big thing" in academic technology. We've gone from "CAI" (computer assisted instruction) using desktop computers and CD-ROMs in the early 1990s, to accessing a variety of teaching resources online in the mid- and late-1990s, to distance and fully online learning beginning

around the same time, to "hybridity" (a mix of distance and face-to-face classroom instruction), student E-portfolios, the widespread student use (and concomitant faculty hesitation about) smartphones and tablets, and the recent meteoric rise of MOOCs (massive open online courses). What is interesting about these successive waves of academic technology is that most of them have been narrowly focused on the teaching side of what we do, where they are often embraced by administrators and opposed by faculty members as a method to lower the labor costs of teaching (often linked to the dramatic increase in use across the university system of contingent labor). This is akin to (or is perhaps a muted academic version of) the titanic battles across time between managers and workers over how technology will be implemented in workplaces and who will reap the material if not educational benefits of that implementation. As a labor historian and proud member of the Professional Staff Congress, the City University of New York's AFT chapter, I would never discount this aspect of the academic class struggle, if I can be indulged the use of that hyperbolic phrase in this particular context.

I will address issues of digital technology's potential impact on the shape and structure of university teaching later in this paper, but I think it is important first to reflect on the other side of the academic equation: What role might technology play in helping us rethink academic research and academic publication? At any number of recent academic conferences (I'd name the 2012 annual gatherings of the Modern Language Association, the Organization of American Historians and the American Historical Association, and the American Studies Association as good examples of the current trend) and in myriad academic and professional publications, scholars in a variety of disciplines have proffered meditations and reflections on, as well as jeremiads and manifestos about, the academy's "technological turn." This discussion has increasingly focused lately on the Digital Humanities (DH), the academic technology à la mode. Seemingly limited by its very name to traditional humanities disciplines, DH as a field in fact encompasses a much broader swath of traditional academic disciplines, including the performing and fine arts and the interpretive social sciences. Its central premise is that digital technologies of a variety of sorts can be employed by scholars

to re-imagine and enhance traditional academic work and publishing, as such technologies already have in the quantitative social sciences and especially in the physical and theoretical sciences and mathematics. Some Digital Humanities enthusiasts go so far as to argue that embracing DH is almost imperative if the contemporary university, or at least the humanities wing of it, is to survive. I am not quite that much of a DH true believer, but I don't minimize its current impact or its potential transformative importance, either.[1]

Though a decidedly amorphous phrase, the Digital Humanities is readily bandied about not only inside colleges and universities and at academic conferences, but also in the scholarly and mainstream press. In the past three years, the *Chronicle of Higher Education*, our industry newspaper, has published 33 articles on DH, as well as 85 entries in the new and popular "ProfHacker" blog that the *Chronicle* launched a few years ago to make the publication more relevant to the up-and-coming academic generation. The *New York Times* has featured dozens of articles and analyses over the past 12 months on the subject, including a recent dyspeptic three-part attack by Stanley Fish in his regular blog, prompted by the publication of a new DH collection, *Debates in the Digital Humanities*, which stirred Professor Fish's vitriol.[2]

Stanford literary scholar Franco Moretti's *Graphs, Maps, Trees: Abstract Models for Literary History* is an especially thoughtful example of how DH scholarship is posing new research questions and developing new research methodologies. In his 2005 foundational DH text (originally published in three parts in 2004 in *New Left Review*), Moretti argued that we can learn previously undiscovered things (what he calls "emerging qualities") about the scope and nature of eighteenth and nineteenth century English prose fiction writing (his scholarly field), by employing what he calls "distant reading" techniques. Distant reading uses quantitative, spatial and morphological data about the number, frequency, geographical spread and genre and sub-genre forms of the entire corpus of these British novels (as compared to the typical close reading most literary scholars do of a small number of canonical works in the field) to draw broader conclusions about those works and the larger historical, cultural, and geographical contexts out of which such novels

emerge. I won't try to summarize Moretti's conclusions here (his analysis, which has strong historical materialist overtones, is too rich and nuanced to do that easily), but I will suggest that this provocative slim book is a must read for historians as well as literary theorists, largely because Moretti challenges us to think in fully interdisciplinary and entirely new ways about analytical questions and methodological approaches that we rarely consider in history, given our typical commitment to siloed disciplinary boundaries and heavy reliance on traditional research methodologies.[3]

Beyond making us rethink the very nature and forms of academic scholarship, as Moretti has done, DH has also managed to raise important questions about traditional forms of academic publication and peer review. Few can argue that the ways we have managed to publish most academic scholarship over the past century — in print periodicals and journals and academic monographs published largely by university presses — can be sustained at anything close to previous levels. The economics of academic publishing, as well as evaporating university and public library budgets for new purchases, make it less and less likely that traditional print venues for scholarship can keep up with the expanding volume of academic output that needs to be published, as well as to meet the professional needs of current and future generations of scholars who must publish their work to secure jobs, get promoted, and, ultimately, secure tenure (assuming that now venerable academic protection system manages to survive the rapid changes that are sweeping universities worldwide).

With respect to digital technology's impact on academic publishing, the speed and reach of the Mellon Foundation-funded JSTOR project, founded in 1995, which made more than one thousand traditional print academic journals available online, was but the first step in the transformation of academic publishing in the digital age.[4] I imagine there are very few scholars working in the contemporary university who haven't benefited from the convenience and rapid search capability that online journal publishing through JSTOR has facilitated. The availability of online academic journals has made that scholarship much more accessible and immediately useable to a larger number of academics.

The number of digital journals that entirely abjure the traditional codex form of publication in favor of exclusive online publication has also grown dramatically in the past few years. Pioneered by our colleagues in the physical and theoretical sciences and mathematics, solely online publication of academic journals, edited and produced by academics themselves (rather than farmed out to academic presses for production if not editing, as is more typical of many humanities journals), has finally begun to spread to humanities and social science disciplines. Perhaps the most dramatic and radical example of online publication of scholarship, *Digital Humanities Now* (*DH Now*), was conceived and launched in 2009 by Daniel Cohen, a leading DH proponent, as "an experiment in ways to identify, evaluate, and distribute scholarship on the open web through a weekly publication," to quote the site's "About" page. Cohen, who serves as the executive director of the Roy Rosenzweig Center for History and New Media at George Mason University in northern Virginia, is *DH Now*'s editor-in-chief. Musing with colleagues about the ridiculously long lead-times that typically define the entire academic journal submission-peer review-editing-publication process, Cohen noted that he and his associates could probably monitor social media such as Twitter (he actively and regularly tweets for and with the DH *cognoscenti*) to determine what was crucially important in DH without having to wait several years to read the newest published DH scholarship, as traditional scholars typically do. *DH Now*, according to its self-description, "showcases the scholarship and news of interest to the digital humanities community, through a process of aggregation, discovery, curation, and review" by monitoring thousands of key DH Twitter feeds, websites, and blogs and using a kind of "crowd sourcing" by hundreds of well-known DH practitioners (what *DH Now* calls "community Editors-at-Large") to highlight the "trending" (to use a Twitterism) subjects and ideas that animate the DH universe. Publishing lead-time is essentially cut down in *DH Now* from months and years to days and weeks. Realizing a few years into the experiment that much of *DH Now*'s efforts had become somewhat ephemeral (the problem with the standard blog format in which *DH Now* is presented — in WordPress — is that older material falls, literally and figuratively, to the bottom of the blog), Cohen

decided to launch the quarterly *Journal of the Digital Humanities* in 2011, which publishes in a more formal, open-access online journal a curated group of the "best" (read "most important") DH articles and blog posts.[5]

Leaving aside the sheer daring of *DH Now*'s conception and digital execution, fully online academic journals in fact have several distinct advantages over old-fashioned printed ones, including: the ability to incorporate into scholarly writing not only large numbers of images but also multimedia elements such as audio and video; the ability to have academics collaborate more easily and engage one another in open-ended conversation about scholarly ideas and issues raised in online journals, thanks to the availability of such online tools as blogs and wikis; the flexibility to change and correct errors of omission or commission even after "final" editing and initial online publication; and, perhaps most compellingly, the realization of tremendous savings in terms of printing and mailing costs.

The Journal of Interactive Technology and Pedagogy (*JITP*),[6] a fully online interdisciplinary journal developed by an editorial collective of faculty and doctoral students that I helped launch in 2012 at the CUNY Graduate Center, well illustrates these possibilities and advantages. The journal grows out of the work of the doctoral certificate program in Interactive Technology and Pedagogy[7] that I founded at the CUNY Graduate Center a decade ago (and that I will describe in greater detail in my discussion below about teaching). *JITP* has allowed my colleagues and me to conceive, solicit articles for, review, and, finally, publish our premier issue in a much shorter time frame and for a very small amount of out-of-pocket expenses (not counting, of course, our extraordinary self-exploitation as unpaid editors, designers, and administrators!). In addition to traditional long-form articles, many of which include multimedia elements, our new journal also has several short form sections, including "Assignments," "Tool Tips," and "Teaching Fails," which allow the journal to publish on a rolling basis relevant short pieces about teaching and curricula as they are submitted, rather than have to wait for the publication of the next formal issue. Because these short sections are structured as blogs, they are designed to encourage readers to respond immediately with comments, queries, and criticisms of the

short submissions as soon as they appear online. We fully expect authors of short and long-form pieces to rapidly respond to blog inquiries and suggestions in turn, thus encouraging the kind of critical intellectual exchange that the "letter to the editor" format used by most print journals never quite manages to realize. This kind of functionality could be available to any scholarly journal, regardless of academic discipline, if that publication had a regular online presence above and beyond its fixed JSTOR version.

Finally, with respect to the vexed issue of peer review, there is growing sentiment that the double-blind system traditionally used in humanities and social science publishing does not really accomplish what it has always claimed for itself, which is an impartial and unbiased estimate by experts in the field of a book or article manuscript's intellectual worthiness for publication. The cloak of anonymity; intolerable delays in the review, revision and publication processes (some authors complain that it is can be three years or more from the time they originally submit a piece until it appears in print); the potential for favoritism or self-serving decisions on the part of anonymous peer reviewers; and, most tellingly, the entirely opaque quality of the peer review process, all have contributed to an increasingly dysfunctional peer review system for print journals and monographs that restricts rather than encourages new scholarly approaches and narrows the channels for academic publication rather than expands them.

As with online publication of scholarship, digital humanists have helped define new forms of peer review that take advantage of digital tools to make the peer review process faster, more collaborative and more transparent. Let me offer but one example: a book published in 2011 entitled *Planned Obsolescence: Publishing, Technology and the Future of the Academy*,[8] in which Kathleen Fitzpatrick, formerly a Professor of Media Studies at Pomona College and now Director of Scholarly Communication at the Modern Language Association, makes a provocative argument that the academy's very future depends on our willingness to embrace new digital and collectively generated forms of peer review and academic publication. Fitzpatrick argues persuasively that only if the university can accomplish a dramatic shift away from what she calls "the production and dissemination of individual

[academic] *products* to imagining ... a system focused more broadly on facilitating the *processes* of scholarly work," will we be able to rescue academic peer review and publishing from itself.[9] The publisher, NYU Press, put its money where Fitzpatrick's mouth was. Dozens of peer reviewers (myself included) read and commented collectively online on the Media Commons site (using a special piece of "horizontal" blogging software called CommentPress, developed by the Institute for the Future of the Book) on draft chapters of *Planned Obsolescence* prior the manuscript's simultaneous publication as a print and e-book.[10] It should be noted that NYU Press also sent the book out for traditional external reviews as well. While these traditional outside reviews were useful, Fitzpatrick and NYU Press both have credited the collaborative online peer review process with demonstrably strengthening the final manuscript.

My *JITP* colleagues and I are building on such criticisms and insights about the peer review process by developing a new feature that appeared in the second issue of our journal, which we are calling "Behind the Seams."[11] This feature is designed to reveal from beginning to end the actual creative and editorial processes by which both long-form and short-form scholarly articles are written and submitted, received and assigned for internal and external review (all of our authors and reviewers are named), edited (assuming the article is accepted for publication), suggested edits responded to by the author(s), and, finally, copy edited and produced for online publication. In its inaugural form, the "Behind the Seams" feature included an embedded online audio conversation (with accompanying transcription) between one of the long-form article authors, Brian Beaton, and the two issue editors, Benjamin Miller and Joseph Ugoretz, about the writing, review, and editorial process. We ultimately plan to include in each *JITP* issue embedded video interviews (and transcriptions) with authors conducted by issue editors, linked to relevant sections of the final published articles. Because the academic publishing process remains opaque to many academics, especially younger scholars, we are hopeful that this "Behind the Seams" feature will begin to demystify the editorial and publication processes while at the same time opening them to more collegial forms of intellectual engagement and collaborative work.

I have suggested to several historian colleagues who are journal editors that similar peer review and online publishing alternatives might be incorporated into the editorial and publication processes of traditional history journals. I am pleased that at least one such traditionally printed history journal has recently begun experimenting with alternative online approaches to peer-to-peer conversations and debates. In November 2011, LAWCHA announced "LaborOnline," a new blog that, according to the LAWCHA website "will deepen and extend the content of LAWCHA's flagship journal, *Labor: Studies in Working-Class History of the Americas*."[12]

With these kinds of possible transformations of scholarship in mind, I want to turn now to the second question from the CHA's "Crossroads: Scholarship in an Uncertain World" call for papers: Are we currently standing at a key juncture in historical scholarship? To respond to this overarching question I will pose several interrelated questions — How might technology affect the ways historians conduct our research work, teach history to our students, and, finally, how might it shape the ways we present our work to the broader public? — and relate those questions to my own experience as a historian.

It's easy, especially for historians, given our particular scholarly orientation and heavy reliance on traditional research methodologies, to sit back and dismiss new-fangled technological approaches as irrelevant to what historians typically do or what many of us think historians should be doing: discovering and evaluating troves of text-based documents on a specific (and, hopefully, previously unexamined) historical subject or episode, writing scholarly articles, monographs and/or syntheses that use those text documents in new or unusual ways, and then publishing our work in print journals or as monographs. As someone who has toiled in that particular vineyard for almost four decades I am not immune to the charms and intellectual satisfactions inherent in that familiar and almost ritualistic research, writing, and publication process. But I am also keenly aware of how much digital technologies have expanded my repertoire as a historical researcher and made me a better and more successful historian.

Let me illustrate this point by describing a traditionally published history article I recently completed with an Italian colleague, which illustrates the ways in which digital tools have redefined and

expanded the boundaries and possibilities of conducting traditional historical research work. That project was a transnational study that dealt with labour militancy and inter-ethnic unionism, focusing on new Italian immigrant workers in the western United States coal industry at the turn of the twentieth century and the role they played in a six month-long United Mine Workers of America strike, which involved tens of thousands of miners, the largest number of whom were Italians. Among the important sources that emerged in our research work for this article were several obscure local United States newspapers that helped us place one of the key Italian leaders of the miners' strike into a different and wholly unexpected historical and organizational context in the years after the strike.[13] These local newspapers would have remained entirely unknown to us (and, we imagine, to most other historians as well) without the power of new online search methods to uncover previously hidden historical information and resources. In this instance, the recent release of the Library of Congress's "Chronicling America" online database of hundreds of digitized local American newspapers published between 1836 and 1922 allowed us to search for and find this key Italian leader of the 1903–1904 United Mine Workers' strike when he became a roving organizer in 1906 for the Western Federation of Miners and the Industrial Workers of the World in the northern California gold fields, two years after the western coal strike had ended in defeat and he had disappeared from the known historical record. It would have been virtually impossible for any historian to find this previously unknown phase of our historical subject's life and career as a radical union organizer without access to this amazing online digital resource. I heartily recommend this digital resource to anyone doing any kind of United States historical research in this critical 85-year period.[14]

Technology offers many such possibilities for enhancing what we do as historians, beyond making our research results better and easier to obtain. I have spent the largest part of my career as a public historian trying to determine how various forms of technology can enhance our ability to communicate and disseminate historical ideas and information in classrooms and for public audiences alike. I think it might be instructive to trace the arc of my wholly atypical

career in the academy (at least for someone from my generation) to illustrate how I acted on that commitment to learn and deploy a variety of technologies to produce and disseminate public history of and to ordinary people, as well as to suggest how much more common the pursuit of alternatives to traditional academic employment has become in the present moment.[15] Following completion of research work on my doctorate in labour history at UCLA, I moved to New York City in 1976 to accept a job in public television researching and making historical films. I reasoned at that point, in my then quite nascent academic career, that while it was still possible to secure a traditional academic job, I wanted to "do" history in non-academic ways and that film-making gave me better entrée to present the past to broader public audiences than would a traditional academic history position. Besides learning how to make films in New York in those years, I also had the great, good fortune to meet Herbert Gutman, the late labour and social historian who did so much to reshape our thinking about how United States history should be written, taught, and presented to the public. Following a series of successful NEH-sponsored summer seminars for labour leaders that I co-directed with Herb, we decided in 1981 to found the American Social History Project (ASHP) at the City University of New York (hereafter CUNY), where Herb was a distinguished professor of history. We began assembling a large and dedicated staff of historians, film-makers, multimedia producers, artists, and educators to design and create books, films, videos, and (after 1992) a variety of digital media to put American working people's experience at the centre of the United States historical narrative. Among the project's most important accomplishments was its "Who Built America?" (WBA?) multimedia history curriculum, which included a two-volume textbook (one of the co-authors of the first edition of the WBA? textbook was Canada's own Bryan Palmer), ten documentary videos (a cutting-edge technology in the 1980s and 1990s when we conceived and produced them) on topics and events in working-class history, as well as an accompanying set of viewer guides that were widely used to reshape the teaching of United States history in college and high school history classrooms and in adult and worker education programs in New York City and across the country. The

WBA? multimedia curriculum also included the nation's first fully digital publication in United States history, the award-winning CD-ROM, *Who Built America? From the Centennial Celebration of 1876 to the Great War of 1914*, conceived and developed by the late Roy Rosenzweig, Joshua Brown, and me, and published by the Voyager Company in 1993, followed eight years later by a second CD-ROM, *WBA? From the Great War of 1914 to the Dawn of the Atomic Age in 1946*.[16]

A hallmark of the WBA? multimedia curriculum and of all of ASHP's digital history work in general has been the project's quarter-century-long commitment to using digital technologies to enhance the quality of teaching and learning of history at the high school and undergraduate levels. The two WBA? CD-ROMs and other digital projects that ASHP developed after 1995 (including *History Matters: the U.S. Survey Course on the Web*, our website produced in collaboration with the Center for History and New Media [hereafter CHNM] at George Mason University that makes a range of primary and secondary historical materials available to teachers and students[17]) are built on two beliefs that digital technologies can and should be used to improve the teaching and learning of history by offering a wide array of textual, visual, sound, and moving image source materials that are largely inaccessible to those who might best benefit from such access; and that such multimedia materials can be used to drive "inquiry-based learning using primary sources," to employ Randy Bass' important insight.[18] Working closely and collaboratively with teachers across the country in a series of grant-supported projects, ASHP staff (led, since 1998, by my long-time comrade and colleague, Josh Brown) helped pioneer a set of active learning strategies to improve history teaching, emphasizing, for example, the uses of primary source documents and visual source materials to encourage students' deep immersion in historical thinking and history making.

Two recent ASHP digital education projects, which combine cutting-edge digital technology and techniques with engaging active learning and constructivist pedagogy, are worth noting in a bit more detail: *The Lost Museum* and *HERB: Social History for Every Classroom* (named, not surprisingly, after the late Herb Gutman). *The Lost Museum* is a self-navigable, three-dimensional re-creation of

P.T. Barnum's American Museum in downtown Manhattan, the most visited cultural attraction in the nineteenth-century in the United States. *The Lost Museum* website was developed over an eight-year period from 1996 to 2004 as a teaching and learning resource, allowing individual exploration of a virtual recreation of Barnum's famous museum and using movement in and around that 3-D space as a means of gaining understanding about the era's larger controversies over race, gender, reform, immigration, sectionalism, and popular culture. As with all ASHP multimedia projects, the digital presentation is supplemented by an extensive archive of primary textual and visual historical source materials and teaching tools — gathered in a special "Lost Museum Classroom" section of the website and developed in collaboration with our CHNM colleagues — that are designed for students and teachers at a variety of educational levels to deepen their historical understanding. That same approach also defines the ASHP's recent online historical database project, *Herb: Social History for Every Classroom*. HERB is a fully searchable database of more than 1,100 United States history textual and visual primary source documents and 80 classroom activities that look at the ways ordinary people both influenced and were in turn influenced by the economic, social, and political transformations from colonial settlement to the present. Growing out of ASHP's two decades-long collaboration with high school social studies teachers and college history faculty members, the source material and teaching activities on the site are now available to individual students and teachers anywhere in the country and around the world.

Such diverse primary historical and pedagogical resources, presented in the "HERB" and "Lost Museum" websites, are developed with a fundamental principle that has animated all of ASHP's educational work in using technology to teach history: primary historical materials, in whatever format they appear online, cannot simply be provided to users, especially to non-experts, without clear contextualizing introductions and indications of how and why such material can and should be used to introduce and engage significant historical issues and debates. I believe that this a significant problem with much of what now passes for online educational content: it lacks clear contextual framing and pedagogical intent, a problem that can

only be solved if and when historians become actively involved in the conceptualization and development of online historical materials.[19]

ASHP continued to affirm its ongoing commitment to making its work available to the broad public via the web, as evidenced by the September 11 Digital Archive, which was also co-conceived and co-developed in 2002 and 2003 with our colleagues at the Center for History and New Media.[20] To complete this project, we historians had to learn the methodologies and processes of archiving and preservation, a set of skills historians used to happily leave to librarians and archivists. The September 11 Digital Archive, which ended up including over 150,000 digital items — including images, videos, audio recordings, emails, flyers, and a range of other image and textual materials contributed from all over the world — remains one of the most popular sites online to find and use historical information about the 9/11 attacks. In 2003, the Library of Congress accessioned it as the first fully digital collection it had ever accepted. Over the course of the last decade, the September 11 Digital Archive has been widely used by teachers to introduce the emotionally and politically charged September 11 attacks and their aftermath to subsequent generations of college and high school students.[21]

Soon after stepping down as the founding director of ASHP in 1998 to take on wider administrative duties at the CUNY Graduate Center, I was asked by the Graduate Center's president if I would conceive and launch a new program for doctoral students who, regardless of academic discipline, would be taught how to use digital technologies in their academic teaching and research, such as the ones we had developed at ASHP and that I have just described. Working collaboratively with a group of doctoral faculty and students I conceived and have coordinated since its founding in 2001 the Interactive Technology and Pedagogy certificate program (ITP) at the Graduate Center, which is an interdisciplinary program that provides doctoral students from a range of academic disciplines with opportunities to reflect on the broader theories behind and pedagogical implications of digital technology usage in the academy. The program features a strong theoretical orientation to technology's role historically in transforming the ways we work and play, hands-on instruction in and use of a variety of digital technology tools, as well

as ongoing conversations about the pedagogical implications and possibilities inherent in using digital tools to enhance the quality of teaching and learning in the classroom. Since so many Graduate Center doctoral students are employed as instructors at various CUNY campuses (which number 24 in all), with sole responsibility for teaching large introductory survey courses to undergraduates in their particular academic disciplines, the uses of digital technology to improve pedagogy is of particular interest to our graduate students and to CUNY in general. Our ITP students are helping reshape the pedagogy of many CUNY undergraduate classrooms, using blogs, wikis, websites, digital cameras, and other digital technologies and pedagogical strategies, to engage CUNY undergraduates as more active makers of knowledge, not merely as passive consumers of it. More than 100 doctoral students from the humanities, social sciences, mathematics, and the sciences have enrolled in the ITP program over the past decade and two dozen have now received the ITP certificate upon completion and the awarding of their doctorate degrees. A number of ITP graduates have been able to parlay their skills in digital technology and pedagogy into both traditional academic positions in universities and colleges around the country, as well as internationally, in non-traditional digital humanities/digital pedagogy "alt-ac" positions and post-docs.[22]

When I teach the initial core course in our ITP certificate program (which I do each fall semester), I always require new students to read Phillip K. Dick's legendary 1968 science fiction novel *Do Androids Dream of Electric Sheep?* and to screen *Blade Runner*, the 1982 film classic directed by Ridley Scott, which is based on the Dick novel. The first day of class, following a vigorous discussion of the book and film, I always ask my students why they think I assigned these two science fiction pieces in a course on interactive technology and pedagogy in the university. In the conversation that follows, which inevitably engages questions about verbal and visual forms, one or more students usually figure out that both the book and film are really about dystopia and how human beings struggle to find meaning and purpose in their lives at moments when technology calls into question the very essence of what it means to be human (a topic we go on to discuss in the context of the writings of Donna

Haraway and Katherine Hayles). At that point I always try to historicize that insight to encompass the broader human impact of technological change, trying to make my students understand that nothing about the imposition of new technologies is pre-ordained or inexorable, that human beings had agency in the past and still have it in the present to oppose, resist, and shape technology to meet our own needs and desires. We go on from those initial classes to read E.P. Thompson, Wolfgang Schivelbusch, and Chapter 15 in Volume 1 of Marx's *Capital*, along with much else, with an eye to understanding the material, social, and historical conditions under which technology has shaped human existence across time. Only when they understand those historical processes do I think ITP students are ready to engage with questions of how to assess the impact of digital technologies on the ways we teach and learn in the contemporary university and begin to understand how to use these technologies — including blogs and wikis, as well as various open source software programs — in constructive and positive ways to transform how we do academic research and pass on that intellectual knowledge to the next generation of scholars.

Much as it did for the Luddites and the skilled iron puddlers of the nineteenth century, technology is posing fundamental challenges to our academic way of life. Rather than resist technological change blindly, we still have the option to shape in positive ways technology's impact on the history profession and the university as a whole. But we can do this only if we are willing to understand how digital technologies work and how we can best use them to create more democratic and participatory classrooms and a more open and engaged scholarship.

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Endnotes:

1 Matthew K. Gold, ed., *Debates in the Digital Humanities* (Minneapolis: University of Minnesota Press, 2012) is the best recent collection that defines the extraordinary breadth of the Digital Humanities.
2 Full disclosure: I contributed a piece to Gold: Stephen Brier, "Where's the Pedagogy? The Role of Teaching and Learning in the Digital Humanities," 390–401.
3 Franco Moretti, *Graphs, Maps, Trees: Abstract Models for Literary History* (New York: Verso, 2007).
4 The number of JSTOR digitized journals is taken from its homepage: www.jstor.org <viewed 1 June 2012>.
5 See Dan Cohen, "Introducing Digital Humanities Now" at: www.dancohen.org/2009/11/18/introducing-digital-humanities-now/ <viewed 22 December 2012>. General information about *Digital Humanities Now* is at: www.digitalhumanitiesnow.org/ and www.digitalhumanitiesnow.org/about/ <viewed 22 December 2012>, which includes information about what is published and what they call their "layers of evaluation," which determine what is included in the weekly digest of DH news. *The Journal of Digital Humanities* at: www.journalofdigitalhumanities.org/ <viewed 22 December 2012>.
6 *The Journal of Interactive Technology and Pedagogy*, www.jitp.commons.gc.cuny.edu/ <viewed 1 June 2012>. In addition to *JITP*, doctoral students and faculty members at my home college now collaboratively publish no fewer than half-a-dozen online journals in

diverse fields from sociology and Hispanic and Luso-Brazilian Languages and Literature to Urban Education and Linguistics, including *Theory, Research and Action in Urban Education*, www.nml.cuny.edu/TRAUE/ <viewed 1 June 2012> and the *Virtual Poetry Project*, www.nml.cuny.edu/poetryproject/vpp/index.php/vpp/index <viewed 1 June 2012>.

7 Information about the Interactive Technology and Pedagogy doctoral certificate program can be found at: www.web.gc.cuny.edu/itp/ <viewed 1 June 2012>.

8 Kathleen Fitzpatrick, *Planned Obsolescence: Publishing, Technology and the Future of the Academy* (New York: New York University Press, 2011).

9 Ibid., 11.

10 www.mediacommons.futureofthebook.org/mcpress/plannedobsolescence/three-texts/commentpress/ <viewed 1 June 2012>. CommentPress can be found at the Institute for the Future of the Book's website at: www.futureofthebook.org/commentpress/ <viewed 1 June 2012>.

11 See the "Behind the Seams" feature in Issue #2 at www.jitp.commons.gc.cuny.edu/behind-the-seams/ <viewed 21 December 2012>.

12 See www.lawcha.org/wordpress/committee-portal/labor-online/ <viewed 23 December 2012>.

13 Stephen Brier and Ferdinando Fasce, "Italian Militants and Migrants and the Language of Solidarity in the Early Twentieth-Century Western Coal Fields," *Labor: Studies in Working Class History of the Americas*, 8, no. 2 (Summer 2011): 88–121.

14 www.chroniclingamerica.loc.gov/ <viewed 1 June 2012>. Particularly impressive is the search tool that delivers highlighted instances of the designated search terms on the physical image of the selected newspaper pages.

15 In the age of the Digital Humanities, many scholars with Ph.D.s have been forced by the academic jobs crisis to find and sustain scholarly careers outside of traditional tenure track academic employment. These individuals have formed something of an alternative movement within and proximate to the universities, complete with its own name ("alt-academy," which speaks for and supports those engaged in alternative academic employment). Informally led by Bethany Nowviskie, Director of Digital Research and Scholarship at the University of Virginia Library, the "alt-ac" movement publishes an open-access, online journal, *#alt.academy*, at www.mediacommons.futureofthebook.org/alt-ac/ <viewed 22 December 2012>. A good overall description of alt-ac can be found in Julie Flanders' personal reflection, "Time, Labor and 'Alternate Careers' in Digital Humanities Knowledge Work," in *Debates in the Digital Humanities*, 292–308.

16 Information about the American Social History Project and all of

its productions, print as well as multimedia, can be found at www.ashp.cuny.edu/ <viewed 1 June 2012>.

17 "History Matters," www.historymatters.gmu.edu/ <viewed 1 June 2012>.

18 See Randy Bass, "Engines of Inquiry: Teaching, Technology, and Learner-Centered Approaches to Culture and History," *Engines of Inquiry: A Practical Guide for Using Technology in Teaching American Culture* (Washington D.C.: American Studies Association, American Studies Crossroads Project, 1997), 1. Bass notes two other important pedagogical approaches in addition to "inquiry-based learning using primary sources": "Bridging reading and writing through online interaction"; and "Making study work public in new media formats, encouraging constructivist pedagogies."

19 The main site of "The Lost Museum"—www.lostmuseum.cuny.edu/home.html <viewed 22 December 2012> — features 3-D animation (which requires installation of a current version of Adobe's Flash Player) of the three floors of Barnum's museum. "HERB: Social History for Every Classroom" www.herb.ashp.cuny.edu/ <viewed 1 June 2012>.

20 "September 11 Digital Archive," www.911digitalarchive.org <viewed 1 June 2012>.

21 For background on the evolution of the project, see Steve Brier and Joshua Brown, "The September 11 Digital Archive," *Radical History Review*, 111 (Fall 2011), 101–9. For reflections on how to use the September 11 Digital Archive to teach undergraduates, see Claire Potter, "Because It Is Gone Now: Teaching the September 11 Digital Archive" *OAH Magazine of History* 25, no. 3 (2011), 31–4.

22 For a survey of various digital pedagogy projects across the 24-campus CUNY system, see Stephen Brier, in *Debates in the Digital Humanities*, 393–401.