TEACHING HYPERTEXT ARCHIVAL RESEARCH

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Online archival research and hypertext reading and writing can be applied to the three components of an English instructor's profession: 'scholar, teacher, and communicator' (Joyce 120). Innovations in online library databases and archives recently reached a height that was only theoretical in 1991, when Alan Kay published 'Computers, Networks and Education' in *Scientific American*. It was Kay's prognosis that 'pervasively networked computers will soon become a universal library, the age–old dream of those who love knowledge. Resources now beyond individual means, such as supercomputers for heavy–duty simulation, satellites and huge compilations of data, will be potentially accessible to anyone' (Selfe 156). The increase in data–storage capability online and on personal computers has made these 'dream' tasks a possibility. Thirty years after the publication of Jacques Derrida's, 'Plato's Pharmacy', it is less true that 'the dissimulation of the woven texture takes[s] centuries to undo its web'. Today, even a 'first comer' to a new 'text' can research, through the Web, 'the laws of its composition and the rules of its game' (63). Hypertexts and personal computers became popular in the 1980's, shortly after the 'Pharmacy' was published. Over the following three decades, Web pioneers have designed programmes that stretch the limits of the information scholars can access in seconds and without leaving their home. I will discuss some of these web–innovations and the theory of hypertext pedagogy in this essay.

Hypertext Theory

Studying and teaching the Web is important for academics and students in the field of literature because it is significant to the culture that we live in. Teachers or professors are conduits of culture, 'not merely the chroniclers or custodians of, but collaborators in, a vast cultural shift' (Joyce 121). The Marxian or negative view of mass–culture is seen in Theodor Adorno and Max Horkheimer's *Dialectic of Enlightenment*. According to Adorno and Horkheimer mass–culture is used by agents, managers, producers and other capitalists in Hollywood and elsewhere to dominate the working people. A large portion of mass–cultural criticism is focused on films that, 'involve *surrender*, under conditions of

hypnotic receptivity, to the cheapest emotional appeals, appeals the more insidious because they are associated with a compellingly vivid illusion of actual life' (Leavis 10). In hypertext studies this 'surrender' is frequently called 'immersion'. Marie–Laure Ryan separates 'immersion' in a 'fictional world' in popular literature, and 'the more cerebral experiences of self–reflexivity and critical distance' in highbrow literature. Viewers suspend their disbelief as they watch a popular film but, are jerked into critical reflection by absurdist productions such as *Ubu Roi*. I believe that e–books are less likely to immerse readers than ordinary books, unless they are accompanied by films, music and other multi–media features. I have not been able to read a full book online as of yet. The non–verbal 'world building' in a SIMS game is also immersing, like a printed novel, a book–on–tape, or a film.

   To understand online archival research, we have to define the term 'hypertext', which is frequently used by academics in the field. Hypertexts are dualistic, like all regular texts, or a Platonic *pharmakon*; hypertexts can be either a poisonous problem or a beneficial drug. Some articles published on the web are of superior scholarly value, and others are plagiarised, childish, misspelled and otherwise of little value to a researcher. In an essay called 'Rhetorics of the Web: Hyperreading and Critical Literacy', Nicholas Burbules begins by asking if 'hypertexts' as a 'mode of reading' are 'new', or whether they are 'the same reading, involving the usual skills and strategies, simply being exercised in a new medium' (Snyder 102). Is the process of reading a hypertext different from reading a text? George Landow writes: 'So long as the text was married to a physical media, readers and writers took for granted three crucial attributes: that the text was *linear*, *bounded*, and *fixed*'. By contrast, hypertexts can be connected through non–linear links, bound only with the frame of the website's window, and can easily be changed or edited by a webmaster: 'We can define *Hypertext* as the use of the computer to transcend the linear, bounded and fixed qualities of the traditional written text' (3). Ilana Snyder restates this definition, 'Hypertexts on the Web are by nature inclusive: texts can be almost any size one wishes; any text can be linked to a virtually unlimited number of other texts online; the addition of new links does not in any significant way detract from the text at hand; and accessing any of these textual links requires little time or effort' (103). Hyper–text, is a combination of the words 'hyper', or 'beyond/ above', and 'text', or 'the body of a printed work'. The 1991 version of *The American Heritage Dictionary* does not contain a definition for 'hypertext', whereas the 2003 version of *Word* does not highlight the term as a misspelling, recognising it as a proper word. A hypertext, in summary, is something beyond text. A

word that is frequently repeated in the above definitions of 'hypertext' is 'link'. Hypertext is primarily writing that goes beyond a single text, by linking itself to other texts. Nevertheless, it also worth observing that some critics argue against the simplification of equating hypertexts with links: 'The meaning of the term "hypertext" is, however, significantly broader than nodes and links — including, according to an early definition, all texts that 'branch or perform on request' (Wardrip–Fruin).

Steven Johnson begins his discussion on 'links' by drawing an analogy to television surfing. He paints a dire image: 'With that one link of association, a whole batch of corollary attributes wrapped themselves around the hapless web surfer'. Johnson even goes so far as to draw a link between web surfing and 'attention deficit disorder'. The surfer values 'images over text, but rarely watches anything for more than a few minutes at a time' (108). From this glum introduction, Johnson explains that he does not share these negative views, exclaiming: 'The eureka moment for most of us came when we first clicked on a link, and found ourselves jettisoned across the planet. The freedom and immediacy of that movement — shuttling from site to site across the infosphere, following trails of through wherever they led us — was genuinely unlike anything before it' (110). Once again, the link or a hypertext takes the shape that its creator allows, it can be poisonous to the point of encouraging an attention deficit, or it can be a beneficial means of linking users to the world.

Hypertext Publishing

In the relatively new field of electronic publishing, 'fantastic and disastrous projects have taken over equipment and energy worthy of better causes'. This was written by Peter Shillinsburg in the third edition of his well–known book, *Scholarly Editing in the Computer Age*. He goes so far as to conclude that the Gutenberg Project in particular is so frequently 'criticized and admonished' for its 'fundamental flaws…that one no longer hesitates to declare it a textual junkyard' (161). He explains that an electronic archive should be a venue for 'perfect…unobtrusive editorial service', where 'full texts and full images' can be scanned and transcribed into a website. Despite this enormous potential, Schillinsburg observes that 'a 'mere' archive of source materials will strike most new readers and researchers from other fields as an undigested chaos of material in which everyone must become an editor before proceeding'. He argues for the need for archives to provide 'source materials' and thorough scholarly editing that

connects 'variant texts' with 'explanatory notes, contextual materials, and parallel texts' to organise the information for a reader who wants to read rather than edit texts in the website (165). The problems Shillinsburg presents are daunting for any novice eager to enter the expanding field of online publishing. If the Gutenberg Project, funded with millions of dollars, is a 'junkyard', how can any $0 budget independent researcher hope to create a product that would be even slightly presentable?

Web publishing is significant not only because of its innovative character, but also because of its enormous size. There are 4,896 journals listed with the MLA Periodicals directory. A hundred university presses reserve tables at the yearly MLA Conventions. A few hundred academic presses are listed on national scholastic listings. This makes up a relatively small circle of writers and editors in the academic publishing sphere. In contrast, there were '54 million' new blogs created in 2006 alone (Morrison). This is a resource through which potentially every one of the billions of people on earth can post their diaries and more formal publications. It is a way for anybody to self–publish for free. Previous means of self–publishing cost up to $20 for a single copy of a book. It is the dawn of the self–publishing millennium.

From this broad view, I will now describe my recent experiences with web publishing to explain some of the properties of this genre. This Spring I won a $1,000 research grant from the Indiana University of Pennsylvania to travel and acquire copies of over a thousand primary documents on 'Abolitionist Women's Writings'. These included letters, photographs, diaries, poems and other unpublished materials. I visited the Sallie Bingham Centre for Women's History and Culture at the Duke University Library, the University of North Carolina, The Southern Historic Collection, Raleigh North Carolina State Archives, Raleigh State Library Building, the Library of Congress in Washington DC, the Philadelphia Historic Society, the Free Library of Philadelphia and other archives and historic sites. In addition to copying the documents, I also photographed historic sites and replicas in them from the plantation experience. These sites included West Point Mill, Stagville Plantation, the Duke Homestead and Tobacco Museum, Bennett Place, North Carolina Museum of History, and the State Capitol. I even used by cell phone to video–record interviews with curators and managers.
In advance of this trip, I browsed the archive listings on the web, and put together a fifty–page list of the relevant boxes, files and individual documents that I planned to access. This preparation meant that I could copy hundreds of additional pages, instead of spending the first hours looking up the listings. I found a few full transcripts of Southern

Women's journals on the archives' website. In Collection #1737, for instance, I found 'Mary Jeffreys Bethell Diary: January 1st 1861 — Dec. 1865', at the Manuscripts Department of the Southern Historical Collection of the University of North Carolina at Chapel Hill. The writing style of this piece shows a highly educated woman, who became an abolitionist after seeing the horrors of the Civil War. On 'Tuesday 2nd of May 1865', she writes that 'The war lasted four years, thousands of men were killed. I expect that slavery will be abolished in a few years, I think it will be better for us'. I also found a number of scanned letters that are great preliminary examples of what I would find later on the trip. One letter, reproduced here (see figure 1), is a statement from Edward J. Brooks, testifying that Sarah E. Thompson worked as his spy in the Civil War. This document can be found in Box #22258, the 'Sarah E. Thompson Papers', Special Collections Library, Duke University. These initial steps were completed without leaving home. However, only a small fraction of the archives is currently available through electronic sources, so a lot of work is left for scholars who are interested in making these documents easily available online.

Figure 1: E.J. Brooks, 'Testimonial concerning Sarah Thompson's activities as a spy': Sarah E. Thompson Papers, Special Collections Library, Duke University. < http://scriptorium.lib.duke.edu/thompson/>

The trip lasted for two full weeks. In the first week, I stayed at a discount $47 per night motel, and for the rest of the time in $25 per night hostels. The amount of cross–country travel involved, the length of the trip, and the uncomfortable living conditions, make this type of work unattractive for most tenure–track professors. After returning to Indiana, I scanned several boxes of photocopies, edited hundreds of digital images, and posted them online in a free *Google Site* <http://sites.google.com/site/abolitionistwomen>. *Google Page Creator* sites store 100 MB of data. You can post your scanned dissertation on a *Google* website, along with hundreds of *Word* files, such as articles that you have not been able to place with a publisher. *Google Sites* allow anybody to become a miniature publishing house, without the high paper–cost associated with traditional publishing.

The images constituting figure 2 were all photographed with a camera loaned to me for the day by the North Carolina University archivists. They asked me to turn off the flash. I edited these images in Microsoft Office Picture Manager, using auto–correct and cropping functions. The scattered lamps in the room and the low quality of the camera settings make these images a bit less acceptable than the standard internet archival scan, of which figure 1 is a typical example. There is a shadow where my head blocked the light from the lamps. My original goal was not creating an archive of these sources, but rather taking the pictures to review the works closely at home, in a format on which I could make notes after printing: this was certainly impossible with the original rare documents. The photographs are all from the Blackford Family Collection. The page with the poem is the third page of a long poem by Mary Blackford, the matriarch of the family (she is the woman in the photograph) called 'The Battle of the Cows', about an imaginary Civil War victory by a group of women who charge the invading troops to win cattle stolen from their starving families. To show the variety of image–types, I also include an official letter and a pen–and–ink drawing from a family–published cookbook.

The *Brown University Women Writers Project* is similar in intention. In Nicole Yankelovich's description, this 'team of researchers from Brown, the University of Pennsylvania, the University of New Hampshire, and Texas AandM…collected all literature written in English by women writers between 1330 and 1830…The project leaders estimate that it will take ten years to collect a majority of the works and put them into electronic form…on CD ROM' (Delany 135). The group succeeded in this task by 1999, and the works are available today for those who subscribe.
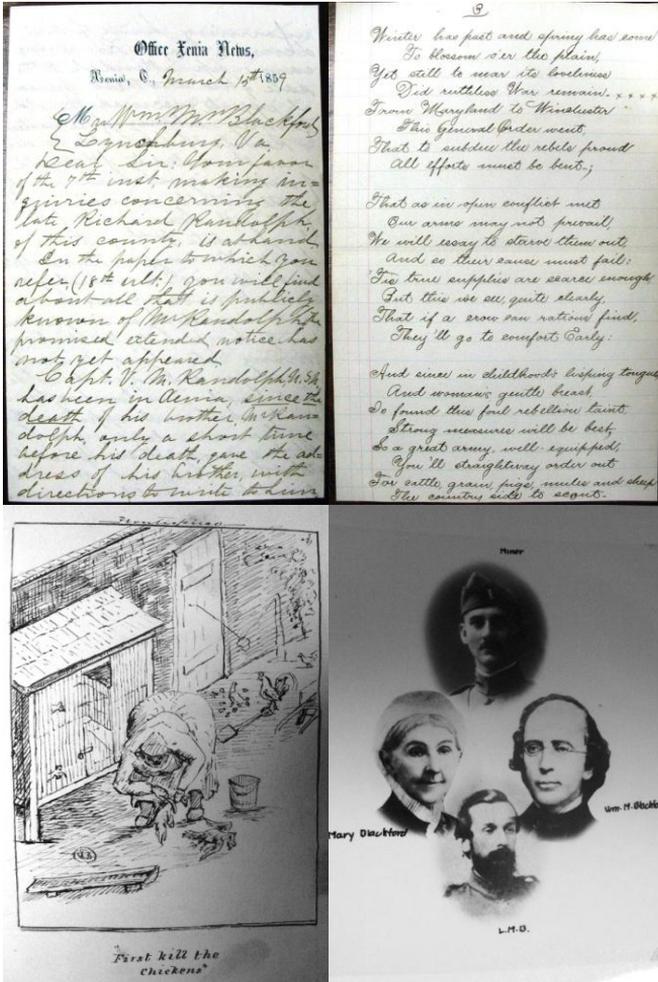
Figure 2: Photographs taken by the author at the University of North Carolina

After most of the scanning and image editing was completed after months of tedious work, I was left with a daunting realisation that to create a 'scholarly edition', as Shillinsburg and others prescribe, I had at least to transcribe all of the verbal documents in my archive. The problem was not only the quantity of pages, but also the difficulty I had with reading the varied handwritings of the authors. I transcribed a ten–page poem, 'The Battle of the Cows', and then started searching for assistance with this monolithic beast. I came across *Nines*, a website for the digital sharing of Victorian Literature, both British and American. I sent an email to this organization, asking them to peer–review my

Abolitionist website. The editor of the *Poetess Archive*, Laura Mandell, replied by email: 'This website is *amazing*. Yes, I would love to include your work in the Poetess Archive…I would like to have my graduate student, Greta Smith, transcribe and TEI encode some of these items…This is an *amazing* collection…Basically the Poetess Archive can help you get your site into the form it needs to be in for submission to NINES, and you can help us by allowing us to put your encoded transcriptions into our database'. Mandell repeats 'amazing' twice in her first letter. We spoke over the phone and I said approximately the same thing that I said by email, but her Graduate Assistant has not yet begun transcribing and encoding my hundreds of documents. This is perhaps a busy semester for them. One of the last things Mandell said was that I should ask the institution at which I will be working to let me borrow their web space and resources for a more formal version of the archive. A university, for example, can sponsor a possible trip to take the *Nines* summer web development workshop, where they teach webmasters how to TEI encode and make scholarly editions online.

TEI is defined as a tool that is 'designed to ensure that a file uploaded from the originator's hard and software environment is duplicated when the material is downloaded into a different hardware and software environment'. Instead of a class, Shillingsburg recommends reading 'A Gentle Introduction to SGML', a chapter in C. M. Sperberg–McQueen and Lou Burnard's *Guidelines for Electronic Text Encoding and Interchange (TEI P3)* (168). The information provided in this book is now outdated as there have been several innovations that switched from SGML to the XML standard, and users have upgraded from TEI P3 to TEI P5.

TEI encoding is necessary to comply with MLA's standards for 'scholarly editions'. The *MLA Periodicals Directory* chose to include another project I am developing this year, the *Pennsylvania Literary Journal*, <http://sites.google.com/site/pennsylvaniajournal>, into their database without this encoding. I think that encoding will eventually become useless. Much as there are free programmes today such as <www.cutepdf.com> that can allow a user to change Word documents into PDFs, in the future there will be programmes that automatically create TEI encoding. Even today with *Google Sites*, I can create a complex website without editing a single word in the HTML, simply clicking on 'bold' or 'italics' in the editing menu, as if I was editing a document in Word. Willett confirms these ideas: 'High–cost equipment is not required for creating electronic text – it can be achieved with the simplest of computers and word processing software'. According to Willett, 'standard acceptable accuracy rate used by many large e–text

projects is 99.995 percent, or 1 error in every 20,000 characters'. Cursive handwritings are harder to decipher, so the error rate is higher for the type of transcription that I would need for my Abolitionist site.

The *Pennsylvania Literary Journal* (PLJ) falls into a different category of web publishing to the *Abolitionist Archive*. Thus, I encountered a number of other problems, working to encourage, edit and distribute critical and poetic texts. *PLJ* is available through *EBSCO*, and it is listed on the *MLA Directory of Periodicals*, and in *JournalSeek*. A number of journals, including the *Journal of Information Ethics*, published through McFarland press, agreed to exchange ad space with me, to increase the visibility of *PLJ*. I plan on self–printing *PLJ* through *Lulu*, a site without any up–front costs, if I do not find a print–publishing house, after selling the idea to the major publishers at the MLA Convention this December. *PLJ* is peer–reviewed and we are working to recruit Editorial Advisors and Guest Editors for the upcoming special issues on 'New and Old Historical Perspectives on Literature' and 'Hypertext and Literature'. So far, this project has cost me near $1,000, if I went to the MLA solely to find a print–publisher for it. I received a single $5 donation in profits.

Martin and Blackwell write that 'the costs of journals has soared in recent years, and few libraries subscribe to more than a very limited subset of those published around the world'. Why not make these rare journals available for free through *EBSCO* to an international audience? Of course, making them available without charge would make it impossible for the editors to charge the high prices they are recently putting on these journals. I spoke with Gary Mitchem, an Acquisition Editor with McFarland and Company, at the SAMLA Convention. He expressed excitement about the possibility of making his company's six printed journals available online. He said that he was already contemplating both *Project MUSE* and *EBSCO* as possible places to place the materials. His journals include *North Korean Review*, *Minerva Journal of Women and War*, *Journal of Information Ethics*, *Clues: A Journal of Detection*, *Base Ball: A Journal of the Early Game*, and *Black Ball: A Journal of the Negro Leagues.* McFarland has an extensive website, but without links to the content of the journals. Of course, there are only summaries available online of the rest of the books. A link reads, 'Vol 18, No 2, Fall 2009 (print and online)'. When this is clicked, a window appears which demands: 'Buy Now! Price: $75.00'. This price is close to the $100 for a scholarly book that Blackwell and Martin refer to as one of the reasons secondary sources are difficult for students and scholars to access. If one resists the command to 'Buy Now!' and clicks on another link, it is possible to view a table of contents for the issue. A

'back issue' is priced at $30 for individuals and $75 for institutions. Even going as far back as 2004 does not lead to viewing any of the promised 'excerpts' online. Why would a major publisher such as McFarland invest approximately $70,000 in a full–time editor, and pay over $100 to each contributor, and pay an extra $70,000 salary to the illustrator for the book's cover and design, in order to create a free online publication? And who would pay $30 for a single online back issue of the *Journal of Information Ethics*? Blackwell and Martin conclude that 'When all the sources are online, the way students and teachers do their work together will change dramatically, and for the better'. I doubt that in the current publishing climate most of the works that have a living author will be available without charge to the public online. If it was possible to compensate the authors and to encourage this wide availability of 'all' sources, then, yes, this would definitely be 'for the better'.

Lastly, I believe the fact that 'digital artifacts are by definition alterable once produced' (Smith) is especially helpful to first–time editors who are bound to make mistakes. On the other hand, the Library of Congress, the MLA and EBSCO all have policies against changes in texts after they are 'published' or after notification that the journal has been completed. The worst type of post–publication editing is adding an extra article or subtracting one from the text. If an extra article is added, the new work is not copyrighted under the rights purchased for the original.

Hypertext Pedagogy

Online degrees are a growing segment in the education field today. In fact I myself won a job as an Online English Instructor with the Newport Business Institute, although it turned out they did not have any available courses I could teach. Unlike universities and colleges that are suffering from difficult economic times, online programmes are expanding; some, such as the University of Phoenix, serve hundreds of thousands of people. Richard Lanham writes that:

> The developers of…computer–managed instructional programs, because they do not share our commitment to the codex book, and because they must document the success of their efforts, have approached digital pedagogy without crippling preconceptions. They are redefining what a textbook is, among other things, and

> completely renegotiating the traditional ratio of
> alphabetic to iconographic information upon which it
> has been based. (106)

While envisioning a purely electronic, online higher education system in America is too far–fetched. It is important to consider the questions relevant to teaching digital technology skills and electronic works in undergraduate classrooms. Lanham pessimistically concludes a chapter on technology and the university curriculum by writing that 'the current public conversation about the liberal arts has been…ignorant, short–sighted, and pedagogically sterile' (118). This part of the essay will make an attempt to suggest fresh 'resolutions' for more informed and far–sighted improvements in the use of hypertexts in the university curriculum.

Paul Delany calls a teacher who uses online resources a 'hypertextual instructor'. He or she 'can link portions of data upon which one is working, whether they take the form of primary texts, statistics, chemical analyses, or visual materials, and integrate these into courses' (21). A professor who is researching primary sources on Plato or Shakespeare can pull the images of the original texts or critiques up on the projector. Seconds later the screen can flash to a *YouTube* video by an archeologist who uncovered rare documents.

Paul Delany argues that the major roadblock that is stopping the modern instructor from being equipped with the technical knowledge to use and teach hypertext in their classes is the cost: 'to develop a hypermedia unit for a course is far more demanding and time–consuming than just preparing lecture–notes'. To win tenure, professors are expected to conduct scholarly research, not merely to spend their time designing hypertextual course-content.

In a short article Joseph Raben summarises the common fear most academics have of publishing online. After referring to MLA statistics which point to the infrequent use of digital scholarship in promotional review, he asks, 'How daring must a pioneering candidate for tenure and/or promotion be to risk career advancement in this dangerous environment?' As an editor of a digital journal, I have had a number of contributors ask me about promotional possibilities for online publications. I answer that any publication is better than no publication and that the promotion committee and those that might be interested in hiring them in the future will be able to access their article through EBSCO from anywhere in the world, with a simple search for their name.

Should the definition of 'research' be expanded to include designing a linked online hypertext? Can website development or hypertext linking equal the standard scholarly research involved in preparing a journal or a novel for paper publication? In addition, should hypertexts created by one scholar be re–used by others? In some cases this might be possible. The use of other scholars' research is usually included as a 'text' on the syllabus. A hypertext can be added to the same list of sources without infringing on the copyrights of the original author. However, if a professor plays videos of another professor's classes for the bulk of their class–time, this would be unethical, as they would be paid simply for displaying work that has been done by somebody else. So if a scholar can find the time to create hypertexts, should they be compensated for it with tenure, or other academic awards? As Delany comments: 'unfortunately, software development is often not recognized as equivalent to conventional publication, with its known rewards of tenure and promotion. Indeed, "publication" is a problem for literary software, because there is no well–established system either of peer review or of retail distribution' (Delany 40). The best way to recognise software development as a viable practice for academics is to include it in the contracts of tenure–track professors. Anybody who engages in hypermedia work that enriches their classes or their scholarship should be assured that they will be paid for their labour. This promise of 'gratitude' from the universities will increase the quantity of quality hypertext research and teaching. Delany makes another essential request that scholars need 'recognition by universities that in order to work effectively humanities scholars now need regular and substantial funding for computer equipment and research assistance' (41). Two examples from the Indiana University of Pennsylvania show that this is not yet the case. Firstly, the 'super computers' at the main library have video cassette players attached to them. They do not have advanced programmes, such as, 3D *Maya* animation. Secondly, insufficient training is given to faculty, staff and graduate assistants in advanced web–development skills. Even the Advanced *Ektron* class is not enough for the development of anything but rudimentary, framed websites. Only after these fiscal problems are resolved can a university allow faculty members to integrate hypertext education into their classes effectively.

The computers and software needed for hypertext study are not enough to advance knowledge and frequent usage of these tools. The professors have to be familiar with hypertext research methods, to teach them in class. The process of creating a workforce of instructors who are hypermedia–literate begins in graduate school.

While much has been written on digital pedagogy and theory, it is a field in which much remains to be said. Leading academics in this field are frequently its harshest critics. Marcel O'Gorman's *E–Crit: Digital Media, Critical Theory and the Humanities* is recognised as one of the best recent books on digital pedagogy and theory. Yet his goal, as it is expressed in the introduction, is to 'reclaim deconstruction from the digital liquidation' rather than to campaign for the digital 'revolution' (xvi). Similar absurdist or deconstructivist views are present in the other major E–Crit text, *Radiant Textuality* by Jerome McGann. In his first Chapter McGann uses scattered, random, absurd or perhaps postmodern mumblings with the fictitious or acidic PRINTER'S DEVIL, when a sober, critical monologue or argument is needed. I, for one, believe that web–studies is a science, or a technical skill, rather than a postmodern poetic.

O'Gorman does not stop at arguing for a return to convoluted theory; he stubbornly rebels against the young currents that strive to change the 'academic curriculum' to fit in with the market–demand for a new media education. He asks why we should do more than simply adjust the 'course content' to incorporate digital texts (xiii). As an example of this trend to edit curricula, he refers to the new Electronic Critique Programme at the University of Detroit Mercy, a Catholic university. The students in this programme helped to create an 'award–winning virtual tour' in 2002 that gave visibility to the small university. The core courses include freelance writing, history of American technology and critical thinking: 'all students must complete [a digital media] portfolio in their last term of study' (110). O'Gorman asks how humanities scholarly research can survive and 'remain relevant and viable in a digital, picture–oriented culture' (xiv). With the bursting of the 1990s IT bubble, he suggests that the more lasting skill for E–Crit graduates to retain is the ability to theorise and strategically evaluate their chosen field in order to re–orient themselves in a shifting market. O'Gorman calls for a rebellion against the 'liquidation' of 'philosophy' 'into the materiality of new media'. He concludes: 'this alchemical transformation did not result in the creation of new experimental scholarly methods that mobilise deconstruction via technology, but in an academic fever for digital archiving and accelerated hermeneutics, both of which replicate, and render more efficient, traditional scholarly practices that belong to the print apparatus' (xv). While deconstruction is an important step in the theoretic ladder, is it really more important to preserve this study than allow technology to help students achieve innovative and perhaps commercially successful or entrepreneurial projects?

Unlike many of the critics cited earlier, I am a proponent of a market–driven education. I often wish that I could take a useful class in TEI encoding as part of my English Ph.D. curriculum. In addition to the quality and quantity of information that can be accessed through online research, learning about it can give students a financial advantage in the employment marketplace. Barbara Kantrowitz writes: 'the council of Economic Advisers released a study showing that in all job categories, from clerks to professionals, people who know how to work with computers earn more than those who don't. In fact, the difference between the groups accounts for half the increasing wage gap between high–school and college graduates' (Hawisher and Selfe 213). Graduate students need to learn about computer usage so that they can teach undergraduates these skills, to help them become more competitive employees. For example, one of the basic skills which most businesses need their employees to have is grammar. David Gelernter explains how a computer can replace a grammarian, as 'programmes correct spelling and, by applying canned grammatical and stylistic rules, fix prose' (Hawisher and Selfe 180). While some modern pedagogy scholars ask if the business world wants English professors to be grammarians primarily, in reality computers are far better grammarians than any professor can become. Thousands of grammar rules can be programmed into *Word*. Therefore, in the twenty–first century, the professor's job should focus on teaching students how they can access grammarian, research and other useful programmes, along with the other skills they need to be more self–sufficient in the market.

Should the graduate schools' curriculum be changed to incorporate more hypertext training? Alister Cumming poses just such a question in 'Conceptualising Hypermedia Curricula for Literary Studies in Schools'. Echoing Papert, he asks whether 'schools of the future' should 'go on teaching the same curriculum, using computers to do the job better', or whether we will begin to see 'radical change in what is taught and what is learned in schools' (Delany 315). Cumming analyses four sample middle– and high–school programmes in which hypermedia is taught: *Grapevine* (encyclopedia on John Steinbeck's *Grapes of Wrath*), *Gulf Islands Novel Study Project* (hypermedia templates prompt students to analyse linked texts), *CSILE Book Club* (collective database of the students reviews of texts), and *Electronic–writer–in–residence* ('on–line computer conference for poetry writing and commentary') (Delany 316–25). In all of these examples, students engage with hypermedia as part of their literature curriculum. They learn about the available online tools by using them.

The same can be done with graduate literature programmes. The difference will be that graduate students would be able not only to criticise the work of other authors online, but would be able to create high–quality research and writing that could be posted on public websites as part of their classes. If a standard final research paper in a graduate class is approximately fifteen pages long, imagine how quickly an entire encyclopedia could be put together on the topic of a given class, such as 'British–American Relations in the Nineteenth Century'. The instructor of this hypothetical class could assign each graduate student to create a 'presentation' that can be published on the Web, instead of a PowerPoint slide–show. The Website for this class can be linked to films, articles, books, archives, scanned documents, music and other sources that are related to the main topic, or to a number of related themes. Adding hypermedia or hypertext components to existing classes will have more impact than creating separate classes in hypermedia education.

Ideally hypermedia and hypertext method skills will become a background knowledge that is instinctively drilled into students by the time they reach graduate school. Instructors would then view hypertext research training in graduate courses as an off–shoot of the advice they usually give to students about physical library archive research, and other classic modes of scholarship and instruction. It is unrealistic to think that every graduate class should be expected to compose a published encyclopedia on the topic that they are studying in class, and many students might want to save their work for traditional paid–for publication, such as journal articles or anthology essays. So, the curriculum should be geared to introducing the various possibilities discussed in this essay to the graduate students, rather than with forcing students to conduct their research online.

Such training should begin early in a PhD student's career, as early as their first theory class, such as English 955 — Literary Criticism. Training in hypertext is appropriate in both a Literature and a Composition English curriculum, because while a literature scholar has to learn the new research methods for contexts, texts and hypertexts, the composition scholar needs to learn how they can build text or hypertext compositions that are well researched.

Training in hypertext research should not only focus on the how–to procedures of such work, but should discuss some of the typical problems that come up when scholars use these tools. These problems need to be communicated by future instructors to their undergraduate students, who might be overwhelmed with hypermedia and hypertext work without these warnings. This essay only has enough space to

discuss one of these problems. The quantity of information that is available online implies that scholars have to begin at the proper entry–point, and must run a focused search to avoid being snowed under by the results of their search.

The cover of Paul Delany's *Hypermedia* is a picture of twelve circles, connected by hundreds of intersecting lines or links. The drawing suggests clutter, confusion, and an overload of information in an online database. In *Page to Screen: Taking Literacy into the Electronic Era*, an anthology edited by Ilana Snyder, in the essay 'Living on the Surface: Learning in the Age of Global Communication Networks', Johndan Johnson–Eilola explains the concept of 'information overload' on the World Wide Web: 'The very invisibility of the database on which the searches are run demonstrates that there is, from a modernist standpoint, too much information…a data cloud' (201). The trees of relationships between different types of information are so complex and inter–connected that most researchers only input a search term and wait for the answer, instead of climbing up a tree to the desired information. In advanced archival research it is necessary to do just that — to start from a list of branches of a tree and to choose which part of a library's catalogue one is interested in researching. Inputting a search phrase might not give you the desired result if you do not know the specific phrase you are looking for. You have to know the direction in the tree of information in the online archive where you want to climb. Further on in the chapter, Johnson writes: 'As information in our cultures gradually moves toward the surface of the global communication network (in contrast to its traditional location, at depth, in archives and offline, traditional libraries), we will begin to see greater reliance on skills which modernists might dismiss as game–playing' (203). Is online archival research a game academics play, before or after they do more 'serious' searches through paper collections?

Some critics even encourage the use of games or 'quests' in undergraduate English classes. An example of this is 'Interpretative Quests in Theory and Pedagogy' by Jeff Howard. I am doubtful about using games and specifically 'quest' games to teach literature. Game designers do frequently base their games on literary models. It seems unprofitable to reverse the study and to study literature through a new art form that aims to mimic some elements of certain types of literature. On the materialistic side, teaching students the skills for game document design might make them enormous profits if they succeed in a game sale later in life. Howard explains that 'a design document is a verbal and graphical presentation of the core elements of a game, such as its gameplay, levels, and narrative'. The problems I imagine with this

proposed lesson plan are both in the apparent simplicity and complexity of the project. It appears to be too simple because 'gaming' appears to be replacing the traditional assignments given in literature and composition classes — the research essays. Simultaneously, it appears to be too difficult, as it is unlikely that there are any graphic designers, cartoonists or even writers in an undergraduate class that would have the skills necessary to create a convincing game–design. Both of these extremes recede when one stops thinking of the project as either childish play or an overly ambitious challenge, and instead thinks of it as a unit designed to improve the students' reasoning abilities. In *Teaching English by Design*, Peter Smagorinsky calls these types of teaching strategies, 'task–oriented small–group activities'. The examples Smagorinsky gives include such 'graphic' productions as board games, body biographies, coats of arms, concept maps, and political cartoons. Planning the design of a movie is the project that is especially related to game design. For the film, the students would adopt a book for the screen, plan the actors and directors that they would hire for the project, and create a drawing of a key scene (35–40). Smagorinsky's intended students are in high school English classes. It is difficult to imagine that undergraduate literature students should create either board games or game designs. Howard describes 'four "symmetrical" choices about the secret society she [main hero of the book] has been pursuing: it is real, it is a hallucination, it is a hoax, or it is the hallucination of a hoax…. These choices resemble the paths through a labyrinth, each of which gives rise to further choices and multiple, disorienting endings'. A book differs from a game because it presents a more linear story, unless it is an e–book with multiple possible endings. Using a printed book with a single ending to create a game based on it presents the basic problem that the game needs to have multiple possible endings to keep the players returning to it dozens or hundreds of times. The book only needs one ending.

The technology that Howard brought to this project is even more interesting than the idea: 'Students produced two small but functional role–playing quests made with the Aurora Toolset, an application that comes with the role–playing game Neverwinter Nights and allows designers to make three–dimensional worlds'. I tried Maya animation before, and it is empowering to see one of your creations moving around on the screen. It would also be a way for students to see some of the novel acted out on the screen. Maya is extremely time–consuming, however, so it is a plus point that this tool does not require rendering. It is even more impressive that another group designed a game with 'Dreamweaver, Photoshop, and digital cameras'. While it is easy to operate a digital camera and to edit it in Photoshop, how can an average

undergraduate be expected to create advanced websites with Dreamweaver or Macromedia Flash? I agree with Howard's conclusion that only 'Aurora Toolset' should be used for this project. I also agree that it is essential to give 'an introduction to the capabilities of the toolset' before the students are thrown into creating the game design.

When this element is integrated together with the fact that the students met to work on this project outside of classroom hours in four workshops, and also spent time developing it individually, it is a project that would consume most of the semester. Howard suggests that games should be incorporated into 'honors seminars…[on] ancient epic, to thematic classes about the relationship between New Media and literature', and 'to single–author…courses'. I agree with the idea of using games in classes that promise to incorporate 'New Media', but I do not think incorporating gaming in classes on either classic epics or postmodern literature would be appropriate. I believe that game design is a viable project for undergraduates, but that it should be practiced in writing or cartoon design classes, rather than as a route to better understand a genre with very different properties. Renaissance allegory should be covered in a lecture on the properties of Renaissance literature and of allegory; it should not become convoluted or too simplistic by equating it with gaming, and avoiding the lectures that would help students to comprehend critically the texts they are reading. Disregarding the problems, most of which Howard acknowledges, this is a great example of self–reflective New Media pedagogical research that should mature in several decades into accepted New Media practices in academia. Perhaps designing a game will be a standard assignment in all introductory English courses in this Brave New World. As Joyce writes, 'We push the electronic classroom to the edges of at least my tolerance for change and multiplicity' (118).

Because of the complexity and depth of the Web, hypertext scholarship should be a collaborative, rather than a solitary activity. In the first stages of a research project, long before a scholar is ready to present their research to a class, they can work with other scholars on the Web: 'Hypertext…[or] electronic text [is]…a radically new information technology, mode of publication, and a resource for collaborative work' (Delany 7). An essay included in *Beyond English* co–authored by James Sosnoski, Patricia Harkin, and Ann Feldman, with the title 'Collaborative Learning Networks: A Curriculum for the Twenty–first Century', explains that the 'Collaborative Learning Networks' or CLN, model can be used to educate an impoverished, uneducated, or simply curious public in a non–profit project, such as the 'Harlem Renaissance' technology network. The website portrays characters from the Harlem

Renaissance and features music from the period, along with biographic summaries and other interactive displays of information. Music, films and some of the other features of the Renaissance project are a form of 'hypermedia' rather than 'hypertext': '*Hypermedia*…extends hypertext by re–integrating our visual and auditory faculties into textual experience, linking graphic images, sound and video to verbal signs' (Delany 7). The benefits that the study cited for a CLN are that students are relieved from single–instructor instruction, the time–constraints of traditional classes, paper–waste through the use of textbooks, physical classrooms, and access to a college campus. All of these benefits are shared by most online hypertext research forms.

As was stated earlier, hypertext research is a constantly expanding field, so at the end of this essay, I have to look towards the future. Joyce writes that 'the electronic text is always a forum even in isolation, teeming with multiple voices, surprising vistas, exotic sounds, or the possibility of them' (125). This is an exciting age of discovery, and the online archive is likely to evolve in the coming years into hypermedia, rather than hypertext databases. In the last few decades sounds and images became extremely easy to store and create, so it is likely that a historic online archive of the future will be filled with digital oral–history videos, as well as CNN television news broadcasts, among other modern information sources. According to Selfe, ' constructions such as texts, images, sounds and movies, which have been almost intractable in conventional media, are now manipulatable by word processors, desktop publishing, and illustrative and multimedia systems' (156). Why should these items be stored in a physical building that costs money to maintain, when they can be stored in the archive of the Web? They are already there, in the intertwined trees of the World Wide Web. It is up to the scholarly teacher to learn the skills necessary to access the relevant sources, and to inform their students about this process.

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