LARRY HANLEY

Educational Technology and Academic Labor

It's late Thursday night in a dorm room at Southwest State U., and Lisa P. is checking her email. There's one from Mom. Here's one from UwinLotto.com. And, uh oh, here's one from Lisa's "Intro to Sociology" class. Once opened, the email tells Lisa that she's failed her most recent quiz, and that she needs to review course Module 21 and then answer the discussion questions posted under the "Deviance" thread on the course bulletin board. Also, the email message concludes cheerily: "Please do not reply to this message because this message has been automatically created and composed by your course learningware."

At first, Lisa is a little bummed about flunking her self-paced, auto-graded quiz. Quickly, however, she recalls that individualized instruction in her Soc class is available 24-7. Lisa gracefully logs onto her course site to begin the unit on "Deviance" and settles back in her chair to view the streaming video course lecture.

Lisa belongs to one possible future for higher education. For a very few campuses, that future has already arrived. For most, that future is still a work in progress. In either case, the increasing presence of educational technology on and off campus raises serious questions about the functions and purposes of academic institutions, the student experience of higher learning, and the future of the academic profession. The struggle over how educational technology will be used and who will define its uses is now shaping up on campuses across the country. Educational unions like the American Federation of Teachers and the National Education Association have, for instance, begun to devote considerable attention and resources to fashioning contractual language for dealing with distance learning and intellectual property. Ultimately, the outcome of the struggle over educational technology will depend less on attitudes toward technology (neo-luddites versus technophiles) than on understanding the relation between new technologies and academic labor.

For some, the importance of educational technology lies in its ability to solve the "problem" of academic productivity. As public funding of higher education continues to shrink, and as tuition hikes reach their inelastic limits, universities are being forced to do the same, or more, with less money. Because they represent the biggest item in university budgets, faculty salaries present the most tempting site for cost savings. As Carol Twigg and Diana Oblinger write in "The Virtual University," higher education must get "more scholar for the dollar." For Twigg and others, educational technology offers the possibility of "capital-for-labor" substitution: "Instructional software is needed," Twigg has written elsewhere, "to create less labor intensive models of teaching and learning. Controlling costs means reducing the direct, personal intervention of faculty where possible in the teaching and learning process" ("Academic Productivity").

As Harry Braverman argued in *Labor and Monopoly Capital*, technology makes labor more productive in capitalist economies by restructuring the labor process to transfer workers' control and knowledge to

management. In the classic example, Frederick Taylor scientifically studied how workers performed their tasks on the shop floor. Management then used the knowledge produced by these time-motion studies to reorganize work to make it simpler, more repetitive, and more standardized. Eventually, these simple, repetitive tasks were taken over by newly designed machines. Skilled workers became machine operators, and the knowledge these workers once owned and practiced, was captured by the engineers who designed the machines and the managers who ran the factories.

The capital-for-labor school of educational technology pursues a similar "Taylorization" of academic labor. The first step in this process involves what "productivity" proponents William Massy and Robert Zemsky call "activity-based costing," or the breaking down of teaching into discrete, isolable units of labor-time. Some key areas of "disaggregation" include: testing and assessment, basic skills instruction, and information presentation. These are activities that can be replaced by software or, in the state-of-art term, "learningware," that automatically grades quizzes, monitors student progress, and electronically delivers tutorials and video or multimedia presentations. This division of faculty labor entails a corresponding "modularization" of curriculum, whereby courses can be disassembled into discrete units that can then be served up to students in a variety of sequences and combinations.

Capital-for-labor enthusiasts describe this fracturing of faculty labor and curriculum as a shift from "faculty-centered" to "learner-centered" instruction. Because academic progress is measured by "mastery" of course modules, students can proceed through courses at their own pace. Guided by learningware's automated assessment, students will know exactly which skills or knowledge they lack. This in turn allows "individualized" instruction as weaker students are assigned more basic modules and more advanced students move on to more advanced material. Individualized instruction also has important moral inducements: learningware will force students to take more "responsibility" for their own learning. As one institution-participant in the Pew Grant Program in Course Redesign, a six million dollar effort directed by Twigg, writes in its project abstract: individualizing instruction through technology "will help students learn to identify their own deficiencies and do their own remediation, a good habit for lifelong learners to develop early" (http://www.center.rpi/PewGrant/rd1award/UWMab.html). Quality learningware, as Twigg has written recently, will actually "allow students to self-teach" ("Identifying Targets of Opportunity for Large Scale Redesign").

"Unbundling" curricula and student learning is one happy effect of the more fundamental "unbundling" of academic labor. Having broken teaching into "cost-based activities," the capital-for-labor substitution parcels out the traditional faculty role among a series of discrete "delivery" agents. Faculty become "content experts." Course designers figure out how to modularize and automate courses. Learningware picks up the more "routine" faculty jobs of grading and assessment, and other "possible substitutions" include "nontenured for tenured faculty, adjuncts for full-time faculty, graduate teaching assistants for various kinds of faculty, undergraduate teaching assistants for faculty or for graduate teaching assistants, and professional staff for traditional faculty" (Twigg, "Innovations in Online Learning"). This race to the bottom of the wage-labor food chain presumably ends with students who "self-teach" but, in a miraculous transubstantiation, actually pay for this auto-labor.

Breaking up the labor process into separate activities, and hence into separate workers, means, as Braverman writes, "that the labor power capable of performing the process may be purchased more cheaply as dissociated elements than as a capacity integrated in a single worker" (81). Unbundling allows the substitution of cheaper for dearer academic labor, but it also cheapens full-time faculty labor by enabling a "stretchout." Reduced to the one role of supplying "content," full-time, tenured faculty can now be spread out to supply content for more courses. More importantly, as Braverman points out, the dissociation of the labor process allows for the "separation of conception from execution" (114). As workers become responsible for single pieces of the labor process, they lose sight of the whole process, and knowledge of the whole labor process passes from workers to management. As David Noble has argued in

his "Digital Diploma Mills" series of articles (http://communication.ucsd.edu/dl/), this is key to the Taylorization of academic labor because it means that, lacking a "conception" of the whole process of teaching and learning, faculty cede control over these areas to those who can best define institutional needs, namely those who "manage" academic institutions. As Twigg writes: "In today's culture, responsibility for content rests with the faculty. But a shift is occurring in higher education where increasingly the institution is, in a sense, buying content which it can control" ("Academic Productivity").

Many an administrator dreams, of course, of making faculty more cost-efficient. The Pew Grant Program in Course Redesign is using millions of dollars to translate those dreams into reality. Now in its third round of funding, the Pew Grant Program supports redesign projects at about thirty institutions, ranging from the University of Wisconsin at Madison and Brigham Young University to Northern Arizona University and Tallahassee Community College. Courses being redesigned to use technology to "achieve cost savings as well as quality enhancements" include freshman composition, introductory psychology and math classes, as well as basic science and remedial math courses.

The Pew Grant Program's focus on large enrollment, general education courses is intentional. Not only are these courses typically labor-intensive, they are also more potentially saleable. If content and goals for these courses are broadly similar within and across institutions, class sections can be absorbed into one redesigned course structure, and this course structure, or its "modularized" bits and pieces, can be shared among institutions. More importantly, the academic work involved in these general education courses is typically already undervalued. A reward structure that pays lip service to teaching ensures that full-time faculty consider these as "service" courses and are more pedagogically involved in and "proprietary" about the curriculum closest to their own professional lives and ambitions, mainly upper-level electives and graduate courses. Perceived as gateways to upper division courses and as rituals of initiation and acculturation, general education courses are seen as more "basic" and less interesting; students and faculty often treat these courses as hurdles to be hopped on the way to the more serious business of coursework in the major. Because they occupy the professional outlands, staffing of sections in these courses relies heavily on outlanders like graduate student or part-time faculty. And, because the courses are less about learning and more about inoculating recent arrivals, the pedagogical method most native to big general education courses, especially in "content" areas like history, the social sciences, and math, is the lecture. In short, general education courses typically are either the mass production lines or the sweatshops of academic labor--the latter dominated by piece work, contingent workers, lax regulation, and extraordinarily exploitative wages.

The Pew Grant Program is responding to real problems and contradictions in the academy. Unfortunately, the Program remedies these by using technology to industrialize teaching and learning and, hence, further degrade academic labor.

There are alternative responses to the same set of problems and contradictions. One of the most promising of these is the Visible Knowledge Project. Like the Pew Grant Program, the Visible Knowledge Project (VKP) is a nation-wide, multi-campus investigation into the relation between teaching and technology (http://crossroads.georgetown.edu/vkp/). The Project involves about fifty faculty members dispersed across ten campuses, with a coordinating center at Georgetown's Center for New Designs in Learning and Scholarship. The Project is associated with the Crossroads Project of the American Studies Association, the Carnegie Foundation for the Advancement of Teaching, and the American Social History project. The core of VKP's participating faculty and leadership are matriculants of the New Media Classroom Project, a series of intensive week-long summer schools for faculty interested in technology that have been hosted at campuses across the nation over the past five years. The animating spirit, intellectual guru, and director of VKP is Georgetown English professor, Randy Bass.

If the Pew Grant Program resolves the tension between the two halves of professional life, scholarship and

teaching, by sundering them into content provision and instructional delivery, expertise and learningware, the central ambition of VKP is to reconcile this same tension. Key to this alternative reconciliation is VKP's recasting of professors into "expert learners." In this version of professional identity, faculty possess two forms of expertise: knowledge of disciplines and fields, and knowledge, often tacit, of how to acquire that disciplinary knowledge. Traditionally, disciplinary knowledge is transmitted in the classroom while the complex ways of mastering disciplinary knowledge are reserved for the offstage abodes of the library, the study, journals, conferences, and fugitive hallway talk. "How do we turn our knowledge--our ways of knowing," Randy Bass and Bret Eynon ask in their introduction to a special, double issue of the journal *Works and Days* "into student learning?" The answer, it turns out, is by harnessing the "engines of inquiry" that drive our own research and thus by making visible professors' own ways of learning and making knowledge.

VKP sees students not as passive receptacles for information or skills, but as "cognitive apprentices" who are initiated into ways of knowing by more experienced learners. Authentic student learning, as opposed to "ersatz learning" (McClymer) that simply asks students to memorize facts or repeat truisms to earn a grade, requires student involvement in the processes of "expert" cognition and performance. This is the difference between passing a history class and doing history, between "mastering content" and making knowledge. Teaching students how to learn like experts entails, however, a self-reflexivity that joins the two, often disjunctive halves of academic labor: examining and modeling our own learning processes becomes the basis for understanding how to initiate "cognitive apprentices."

For VKP, technology might nurture authentic student learning in several distinct ways. First, technology makes primary and archival materials, the basic stuff of scholarly life, much more widely available through the internet. Second, new technology can enhance dialogue and communication to build authentic communities of interpretation and understanding. And, finally, new technologies can provide new venues for making student work public, and hence publicly accountable and usable. Unlike the Pew Grant Program, technology in VKP doesn't replace or "offload" faculty labor; instead, technology offers the possibility of making faculty labor into an example to adapt and critique.

A particularly innovative and influential example of this approach to teaching and learning can be found in what Randy Bass has called "the novice in the archive" (Bass, Engines). Here, guided by teachers, student-historians tackle real historical questions by exploring and interpreting online collections of primary materials. In his high school history class, for instance, Carl Schulkin asks his students to explain the situation of free blacks in the antebellum South by exploring "The Valley of the Shadow" website, a vast archive of newspapers, census records, diaries, letters, and church and military records chronicling two communities before, during, and after the Civil War (http://jefferson.village.virginia.edu/vshadow2/contents.html). In the course of their efforts, Schulkin's students not only learn to find, collect, sort, and make sense of historical information, they also learn how to critique the historical record by examining "the bias and one-sidedness of the primary sources from which they were starting" (Schulkin 239).

Likewise, in his women's history course at Assumption College, John McClymer assembles five online sets of primary materials and then asks his students to explain what 19th century feminist Paulina Wright Davis meant when she used the phrase "soul murder" in her speech to an 1870 woman's rights convention. McClymer's students must not only contextualize Davis's phrase within contemporary rhetoric and discourses, they must also begin to recognize and manage the "different point[s] of entry into the assignment" and the "different interpretive possibilities" offered by each of the collections of primary materials (http://www.assumption.edu/whw/). Both projects take advantage of the distributive possibilities of the Internet, and both ask students to undertake authentic, historical analysis, synthesis, and interpretation. Schulkin and McClymer encourage constructive learning and writing by requiring students to build knowledge rather than simply mimicking it. Finally, each project finds its inspiration and form in

the self-reflexive examination of Schulkin's and McClymer's own professional inquiries and expert learning as historians.

VKP is based on efforts, like Schulkin's, McClymer's, and others' to undo the alienations of academic labor by using technology to make teaching and scholarship reciprocal practices. The programmatic goal of VKP is equally ambitious: to disseminate not a particular model of teaching and learning with technology but a distinctive way of understanding the relation between technology and teaching and learning. This is evident in the VKP "resource kit," published online, that chronicles an exercise in reading maps conducted by Sherry Linkon as part of a course on local labor history at Youngstown State University (http://crossroads.georgetown.edu/vkp/resources/kits/). Through streaming video, texts, and transcripts, the resource kit shows how students use computers to make sense of the social meaning of maps. But, the kit also makes visible Linkon's efforts to examine her own teaching, her efforts to focus on student learning, to research the evidence of student learning, and to assess and evaluate the effectiveness of teaching and learning with technology. With teaching and learning as the objects of scholarly inquiry, Linkon becomes the "expert learner," and faculty become the "novices in the archive."

The Visible Knowledge Project is a rebuttal both to those who suspect the intrinsic defects of technology and to those who might like to "disappear" teachers from education. Still, VKP confronts some serious obstacles. First, within the professional culture of academia, the act of reflecting on teaching and the work of making teaching and learning visible are decidedly unnatural. Second, approaching students as "expert learners" might sacrifice other models of learning on the altar of disciplinary expertise. Thinking and doing history like professional historians, for instance, might seem more like "authentic learning" to history professors, but how does this exclude other, less narrow approaches to student learning, like those proposed by Paulo Freire, John Dewey, and other radical and progressive pedagogues? Finally, VKP will have to confront the "digital divide" between institutions and workplaces of higher learning. High workloads, shrinking budgets, stronger administrative control and scarce electronic resources all militate against the time and tools necessary to conduct the scholarship of teaching and learning with technology. These conditions mark a widening gap between mass public higher education and selective private or public institutions. Ironically, the teachers who labor under these more difficult conditions are those who would most likely benefit from a "re-professionalization" of teaching.

Ultimately, educational technology has no intrinsic politics. One could practice VKP's scholarship of teaching and learning without technology, just as one could speed up and stretch out academic labor in the name of productivity without learningware. The politics of technology resides in how technology is used and who controls the uses of technology. Will educational technology be used by academic management to degrade and control academic labor? Or, will educational technology be used by teachers to assert and extend control of their own labor and workplaces? That's a political choice. It also implies a political struggle, not just over educational technology and academic labor, but also over the meaning and experience of higher education.

Works Cited

Bass, Randy. *Engines of Inquiry: A Practical Guide to Using Technology to Teach   American Culture*. (1998):   http://www.georgetown.edu/crossroads/guide/engines.html.

Bass, Randy and Bret Eynon. "Teaching Culture, Learning Culture, and New Media: An Introduction and Framework." *Works and Days* 16: 1 & 2 (1998): 11- 9.

Braverman, Harry. *Labor and Monopoly Capital*. NY: Monthly Review Press, 1974.

Massy, William and Robert Zemsky. "Using Information Technology to Enhance Academic Productivity." (1995): http://www.educause.edu/nlii/keydocs/massy.html.

McClymer, John and Lucia Z. Knoles. "Ersatz Learning, Inauthentic Testing." *Journal of Excellence in College Teaching* 3 (1992): 33-5

Schulkin, Carl. "High Voltage Teaching: Using New Media to Electrify Students and Classrooms." *Works and Days* 16: 1&2 (1998): 231-24

Twigg, Carol and Diana Oblinger. "The Virtual University." (1996): http://www.educause.edu/nlii/VU.html.

Twigg, Carol. "Academic Productivity: The Case for Instructional Software." (1996): http://www.educause.edu/nlii/keydocs/broadmoor.html.

Twigg, Carol. "Innovations in Online Learning." (2000): http://www.center.rpi.edu/PewSym/monohtml.

Larry Hanley teaches in the English Department at the City College of New York. He is active in CUNY's faculty union and edits Academe, the magazine of the AAUP.