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Using Technology to Bring Research into the Classroom

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Introduction:

Brown's institutional identity is intrinsically connected to its particular approach to university education. It is committed to being a "university-college", where students assume responsibility for their education, and work as part of a single academic community, apprentice scholars in authentic collaborative learning relationships with the faculty. Though familiar, this formula really does express a plausible substantive contrast with other institutions, where students are given relatively less choice about both the content and conduct of their education, and where they are not encouraged to comport themselves as real -- even if profoundly and peculiarly junior -- colleagues of the faculty.

For the most part discussion of the use of academic information technology, at least in higher education, doesn't directly address the question of fit with this or that educational philosophy. In fact, typically discussions of academic information technology focus (and not for entirely bad reasons) on features which aren't even particular to education *per se*. Our first instinct is to take advantage of new technologies in order to efficiently organize and communicate information and to better collaborate on common projects -- but these are problems that are typical of almost every modern workplace, and not at all peculiar to educational settings. Even when issues genuinely specific to education are addressed, it is still unusual to frame them in the context of an institution's particular educational identity, rather than simply in terms of educational objectives in general.

In fact, the new information technologies can be used to provide very significant direct support for Brown's educational agenda. In particular, these technologies can help faculty members *bring more research into the classroom*, contributing to the creation of that collaborative environment that is uniquely consonant with Brown's particular educational

philosophy – an environment where students are apprentice scholars themselves, working along side the faculty and doing work more or less like the work the faculty member does. Below I will take up just two of the many ways that technology can help bring research into the classroom: the first by removing some some obstacles, and the second by suggesting new opportunities.

1) Removing Old Obstacles

Information technology can help remove or reduce some of the obstacles that prevent faculty from bringing their research projects into the classroom – or, to make the same point from the student’s perspective: that prevent the student from becoming an apprentice-scholar, working with other students and faculty on real disciplinary work. These obstacles all derive from the fact that however much we wish to conceptualize faculty and students as being in the same educational space, the fact remains that in certain fundamental respects they obviously are not. To begin with students do not have the disciplinary skills, experience, or learning that faculty have; they are, after all, students. In addition they have a very limited amount of amount of time and energy to devote to any particular enterprise: there is a lot to do, and learn, and very little time. And finally the goal is not exactly the same, for the rationale for the apprentice-scholar strategy is that it is the best route to a liberal education, not the increase of knowledge and scholarship, which is the goal of pure research.

Reducing the significance of the difference in learning, skills, and experience may seem suspicious, even absurd and self-contradictory. But if there is no way to productively manage this tension, then the goal of a "university-college" -- this orthographically explicit combination of ideals like those of Abraham Flexner (who had no need for students to be taught) and Cardinal Newman (who had no need for faculty engaged in scholarship) -- is doomed. Fortunately, not only can this tension be managed, but it is precisely working in the area of this active fault-line that makes teaching at Brown so exciting.

And technology can help. Consider for instance, the arduous drudgery involved in first order research in many disciplines. There is apparatus to build, texts to transcribe, informants to depose, and so on. Full participation in such work, even when students are capable of it, would be an educational disaster. It is much more reasonable, more pedagogically sound, to explain how the research is done, provide some prepared data, problems sets, lab exercises, and so on -- but this necessity does put stress on the balance of authentic research with structured learning. Information technology has brought improvements in instrumentation, data collection and management techniques, and, most of all, simulation tools, that drastically reduce the drudgery of research on the one hand,

and improve the verisimilitude and open-endedness of structured exercises and labs on the other. This is not only true of the sciences, but the humanities as well. To take one example, textual collation has long been central to much humanities scholarship, but it is certainly one of the more laborious enterprises imaginable, utterly daunting in time and commitment to all but the most single-minded and self-denying student, and with a fairly low educational return on the effort. But with collation software many of the merely mechanical aspects of collation can be more efficiently managed, freeing time for the most intellectually engaging, and valuable aspects of textual criticism.

2) Creating New Opportunities

The second way for information technology to directly support Brown's distinctive educational agenda is particularly exciting, partly because it is new, being a feature of the particular circumstances we find ourselves in today, and partly because in its nature it goes right to the heart of disciplinary scholarship and learning.

As noted above, *non-apprentice* scholars and researchers (that is, faculty members) differ from apprentice scholars (students) in one important and, despite the preceding discussion, ultimately permanent, respect: they know a lot more about their fields than their students do. This difference is logically necessary and so permanent -- and, fortunately, much of the frustration it creates is actually stimulating and valuable. But it can still be an obstacle to development of an ideal culture for a single community of scholars. What, after all, do students have to offer their teachers? Sometimes teachers can mitigate the negative consequences of this disparity by introducing projects that minimize their own advantages -- but this is not always practical, and in some disciplines, where the importance of accumulated basic knowledge and experience looms particularly large, it may not seem possible at all.

Recent events in information technology have, at least temporarily, given us a new approach to this problem. As has been argued elsewhere, the new information technologies for teaching and learning have opened up an incredible range of disciplinary techniques and tools, so much so that it is not unusual to hear that these new technologies are "transforming scholarship". Whether or not the rhetoric of transformation is warranted, it can't be denied that the changes underway are profound.

So here we have a whole new set of important problems and strategies that, on the one hand, are fundamentally disciplinary in nature, and, on the other hand, are almost as new to experienced scholars as they are to their students. As a result, in many technology projects faculty and students find themselves working closely together to develop new innovative applications of these technologies. Of course it is a commonplace that students

are “teaching their teachers” about computing applications (about how to make databases, web pages, convert file formats, edit video, etc.). But that’s not exactly what’s going here. Applications. It is still the accomplished scholar, the faculty member, who has the critical methodological and disciplinary information needed for the development of principled discipline-specific technology. It is rather that the collaborative projects that attempt to bring this information to bear on the development of new tools and strategies create a unique opportunity for authentic disciplinary work on the student’s part and for collegial relationships with faculty members. The many flourishing humanities textbase” projects are particularly good examples of this dynamic.

For more help

CIS’s Scholarly Technology Group (<http://www.stg.brown.edu>) can help faculty interested in advanced applications of information technology. For more information contact, STG Associate Director for Research and Projects, Elli Mylonas, Elli_Mylonas@brown.edu.