IN INFORMATION TECHNOLOGY, DON'T MISTAKE A TOOL FOR A GOAL

By STANLEY N. KATZ

I am certainly not an expert on information technology, but a humanist who specializes in history and law and has some administrative experience. But I have been in higher education, one way or another, for almost exactly half a century, and the 11 years I spent as president of the American Council of Learned Societies gave me a new perspective on the startling innovations in information technology that, I now believe, constitute the single most important set of influences on teaching and research in the humanities. At one time, I had assumed that the new technology was important mainly in the sciences and, to a lesser extent, the social sciences. Humanists, after all, are people of the book and the manuscript. But, as I have traveled and observed, I have discovered the remarkable extent to which technology is changing how humanists do their work

Nevertheless, I have also come to believe that we need to be very careful to ensure that information technology serves the university, and not the other way around. Too often, I fear, we have reacted to technology, rather than thinking creatively about how it might enrich our basic educational mission. As the medievalist James J. O'Donnell pointed out in his intriguing *Avatars of the Word: From Papyrus to Cyberspace* (1998), we have confused a tool with a goal.

First, a bit of history. During the 1950's and 1960's, computers were employed on campuses primarily for scientific research. By the late 1960's, there was some use of technology for instructional and administrative purposes. At that point, most universities built centralized computer centers with increasingly powerful and costly machines, mostly for the benefit of the physical sciences. It was not until the early 1980's that the computing environment began to change and university departments were able to buy their own microcomputers. Then, in the mid-1980's, the personal-computer revolution took off, and more imaginative and widespread development of instructional technology began. Soon after that, the Internet combined with the digital and telecommunications revolutions, setting off a stunning expansion of computing by university personnel and increasing the range of computing possibilities. By the turn of the 21st century, information technology had arrived in all its costly and confusing glory.

Due to its piecemeal and unsystematic development, however, it has emerged on campuses with little broad discussion of its larger educational implications, and even less of its relationship to the fundamental purposes of colleges and universities. Indeed, educational goals have generally been secondary to organizational and financial concerns. That has been especially true since the 1990's, when a land-rush mentality took hold. The excitement has partly been driven by the possibilities opened up by the Internet, but also by the hype of computing by both the federal government and business, from whose ranks universities draw many of their trustees.

We can see the tangible presence of information technology all around us. But it is not so obvious that the technology did not have to be introduced to campuses as it was, or that it did not have to be managed in the way it was, or that very different sorts of financial decisions might have been made.

A number of areas of campus policies and practices raise concern. Even a few examples will make my point. Surely one of the major educational resources most deeply affected by information technology is the library, today already well along the road to being transformed. It is now hard to imagine how we administered libraries before computers. Almost every step in the library process, from acquisitions to the delivery of books and journals, is now automated. The electronic catalog and, particularly, the capacity to search online across library catalogs provide tremendous new research power. So does online access to databases, and so on. Of course, remote access to library databases -- the creation of a virtual library -- means that the library as a place, as a physical facility, is potentially less important than it used to be.

As an enthusiast of technology, I do not find the mechanics of the transformation of scholarly communication problematic, although there is plenty of room for debate about strategies and structures. But I am convinced that, on many campuses, far too little thought has been given to how technology is being permitted to change libraries. Do we know what we want the virtual library to be and do? Is enough money, and appropriate personnel, being allocated to libraries to perform their potentially expanded role in both teaching and scholarship? Do library directors have sufficient independence and training to lead libraries into the new era? Who should train faculty members and students to use the library's information technology? Does, for example, a teaching and learning center belong in the library? In essence, those questions come down to the need to clarify the goal of the library in the technological era, and to consider how the library should be restructured to attain that goal.

A closely related area that has been dramatically affected by information technology is intellectual property. It is not clear that the traditional "fair use" exceptions to intellectual-property rights for scholarship and teaching will be protected under the emerging e-copyright regime, nor whether libraries will be permitted to fully develop

e-reserves for college courses. Further, the new licensing regime for buying and using software is confusing: In effect, the idea of purchasing material is being replaced by the need to contract for it. Additionally, the traditional doctrine of "first sale," which allowed libraries to buy books and then lend them to borrowers, is being superseded by restrictive terms imposed by large software vendors -- terms that are not even uniform across educational institutions. Some licenses also make it difficult for librarians and campus users to examine material before purchasing it.

At the moment, one of the hot-button issues concerning intellectual property is the development of educational software. Put too simply, the problem is that universities now want to control potentially profitable electronic publications created by faculty members under patent-law policies, rather than under existing copyright-law policies. For years, universities have asserted that processes or products patented by scientists and engineers are the intellectual property of the university, because the discoveries were made in expensive university laboratories. Faculty members have shared in the earnings of registered patents according to well-established formulas on each campus. In the past, however, faculty members were permitted, indeed encouraged, to copyright their own books and articles, and to retain any profits from royalties. Now comes software for teaching that has the potential to be highly profitable. But it is also, one must say, more closely related to the teaching function for which almost all faculty members are primarily employed than to patentable research done in parts of the university. And most faculty members think that it should be treated differently.

Nevertheless, the response of university administrators has been to attempt to expand the patent policy to cover such courseware, and to claim that it belongs to the university, with a profit-sharing arrangement for faculty members. In other words, for the first time, university teachers are in danger of being told that they cannot control some of the most time-consuming and creative aspects of their pedagogical duties. They are, thereby, being reconceptualized, without their consent, as workers for hire. How much enlightened contemplation has been given to what is educationally or intellectually at stake? How important is courseware to the educational mission of the institution? To what extent do we need to provide incentives -- and avoid disincentives -- for faculty production of high-quality software? Is controversy over university bylaws the best way to think through educational policy?

I think not. But the copyright issues surrounding courseware are one of the many ways that the law of intellectual property, as applied to information technology, is changing how a university works and relates to its constituencies.

A third area of concern is distance education. Who would have thought, only a few years ago, that our great universities would now be devoting so much apparent effort (and so much money) to what probably would have been called, a decade ago,

continuing education? Most of the elite private universities, after all, once thumbed their noses at adult or continuing education, unless they thought of it as useful for the cultivation of their alumni. Suddenly, even the elite universities are hungry to get into the area, now dubbed distance education. Would that have happened without the new technology? Not a chance.

But too much of what is now being called distance education at most institutions is not an educational idea; it is a business idea. The point I should like to make here is simply that distance education should be thought of as education. The new technology now gives us the opportunity to deliver education remotely, and that should be a cause for educators to celebrate. But I will celebrate only when I am convinced that our creative energy is going into using technology to deliver a better-quality educational experience, rather than into fattening the university's bottom line.

Are we really thinking imaginatively enough about the pedagogical opportunities (and difficulties) of virtual education? Have we realized that we are engaged in distance education within our campuses, as well as without? How does virtual education on the campus differ from distance education? Technology gives us the power to provide access to information and guidance in every dormitory room, after all, and we need to think how to use that power in conjunction with the physical presence of faculty members and facilities. Is it a problem that our libraries are emptier and emptier of students every evening? Is sitting in front of a terminal truly the best way to learn? How does the use of interactive teleconferencing technology affect the learning process? Now that we have hard-wired our campuses (or created wireless networks for them), we need to do some serious research on the impact of what we have done.

The fourth area in which I see problems is commercialization. Distance education and changes in university attitudes on copyright law are hardly the only evidence of the commercialization of higher education in response to information technology. The emergence of a proprietary sector based on the virtual university (the University of Phoenix being the most obvious example) gives most of us pause. Administrators and faculty members on traditional campuses worry that such new organizations do not provide the same quality of education or depth of course material as their own institutions.

Still, too few of us pay attention to the pervasive impulse to become the university.com. Or perhaps we are simply confused by the hype and obfuscation about commercial projects being undertaken by many universities. The hoopla tends to mask the degree to which some institutional sponsors haven't really gotten their digital acts together. Arthur Levine, the president of Teachers College of Columbia University, and other cheerleaders for commercialization seem to believe that, if universities do

not proceed, the window of opportunity will close as proprietary institutions take over digital distance education. I believe they are dangerously wrong.

At one level, universities are simply going through what other nonprofit cultural institutions are encountering as they seek to reinvent themselves as virtual institutions, becoming as much creatures of the World Wide Web as colleges, museums, libraries, or historical societies. The problems they face are not primarily in developing the technology, although that will always be a substantial challenge, but in constructing viable business plans. How are trustees and administrators planning to recover the enormous costs of digitization, equipment purchase and maintenance, and the retention of high-priced high-tech employees? When one attempts to move beyond cost recovery and to produce surpluses (as we in the nonprofit world call profits), the matter is more complex, and more troublesome.

Few nonprofit enterprises have the capital to develop ambitious digital programs; as a result, they are turning to for-profit alliances, or creating their own commercial entities with access to capital markets, to make their move into the digital era. The Manchester Craftsman's Guild, an organization that promotes the arts among inner-city youth (and that has its own for-profit catering business), is a case in point. Within higher education, I am thinking about Fathom (a company that has gone into partnership with Columbia, the London School of Economics and Political Science, and other institutions), eCornell (a rare stand-alone university effort), UNext.com (which provides a consortium for business training and education), among others. Perhaps we should call ours the era of U-Portal.com, or the university as portal.

I have neither the time nor the knowledge to describe fully the multitude of strategies to build electronic programs to enrich the university virtually. I am probably much too cynical, for doubtless some of those efforts are genuinely motivated by the desire to improve education through technology. But, judged by their press releases, none of the most highly touted schemes strike me as being primarily motivated by educational policy. What is the difference between Yahoo or America Online and Columbia University? Less and less. The virtual commercial efforts of an increasing number of universities are evidence that the tool has become the goal. The larger question is whether the nonprofit university is subverting its mission in a quest for income from information technology. Does it matter that some of our finest universities are beginning to behave like proprietary educational institutions? Will entering the commercial sector eventually jeopardize their dedication to providing the highest-quality education they can? That hasn't happened yet, but it could.

I could go on, but my point is simply that the new technology has unleashed such creative, frequently entrepreneurial activity that is so expensive, pervasive, and difficult to manage that it has had an impact on some of our fundamental practices in

teaching and scholarship. It will continue to do so, and it will drive us if we do not drive it. Have we established the mechanisms to monitor and evaluate those developments?

I do not pretend to have a cure, but would like to propose a few approaches in the near term. As a start, most institutions should examine their governing rules and formal educational policies in the context of the new technology. The one area in which action has begun is in intellectual property, for which some excellent university statements have been drafted, although we are far from consensus on which policies are genuinely faculty-friendly. But we definitely need specification and clarification of the rights and responsibilities of faculty members, students, and administrators on a whole range of issues relating to information technology. Some of the problems are already quite apparent: ownership of courseware; more generally, the legal terms of faculty employment in the electronic environment; allocation of faculty time to outside dot-com activities; copying of research and teaching materials; limits on the use of the Internet (and intranets); electronic privacy; rules governing the authority of research material taken from the Web. And many, many more. I am not proposing a rule-bound environment, but rather advocating that educational institutions put on the table some general propositions for roles and responsibilities in the era of information technology. We need to understand better how to relate to one another in this environment.

Second, we have to consider the reorganization of some aspects of the authority/command structure of the institution to move decisions about information technology into educational perspective. The emergence of the upper-level administrator for information technology, often called the chief information officer, or C.I.O., was one of the first administrative responses to the need to cope with the new technology. That officer is frequently in conflict with the librarian and, for that matter, with administrators of other educational units over such issues as the allocation of resources and the purchase of major information systems.

As my friend Barry Sullivan, the former dean of law at Washington and Lee University, recently said to me, for the most part the I.T. people keep doing basically what they've been doing, and educational entities like the library keep doing basically what they've been doing, each wanting to take over the other's empire, but neither going to the trouble to look at the whole picture. The administrative theory has been that the buck has to stop somewhere, and that is sensible. But the operational result has been that, too often, the information czar focuses primarily on administrative computing, because that has usually been the institutional priority. Some institutions are experimenting with combining the C.I.O. and the librarian, because the library is one of the heaviest users of technology within the university, and that may be a good

solution. Even if it is, though, I fear that instructional technology and, to a lesser extent, research technology will tend to be ignored.

At the very least, we must create authority structures that evaluate technology needs and opportunities in terms of intellectual and educational priorities, rather than administrative imperatives. It might not be a bad idea to find C.I.O.'s who have experience in teaching and research, so they will be part of the academic culture.

A third and related point is that institutions of higher education are underinvesting in the human resources necessary to bring the teaching and research functions of the university fully and quickly into the information-technology era. There are many good examples of how that can be done; the Institute for Advanced Technology in the Humanities at the University of Virginia (which nurtures intellectually original and technologically sophisticated faculty projects) is one of my favorites. But too many campuses are leaving it to students and faculty members to educate themselves on how to use technology to best effect.

I am particularly concerned about instructional technology. As I have suggested, we seem to think of I.T. instruction primarily in the context of delivering education off campus, whereas remote access to professors and information is, in fact, the reality we confront, including in education on campus. There are serious questions about the impact of technology on the learning process, and we need experts on our campuses to help us work through them. Who such experts are, where and how they are trained, and where they should be based on campus need immediate attention.

Finally, we must continue to pursue collaborative possibilities with other universities. Libraries have worked with one another for a very long time; distance education is another area in which interinstitutional collaboration is emerging. The tremendous costs of technology may force us into collaboration, to which we have paid mostly lip service in the past. In particular, this could be an area in which larger institutions could become partners with colleges and smaller universities. Further, the entire world is available in the virtual era. We can now begin to make good on our aspirations to internationalize our campuses through joint, interactive courses and other projects to make information from abroad more widely available. If we plan such consortial activities with thoughtful attention to educational values, we will serve everyone better than we are now doing.

It is important to remember in all of this planning that technology is not something that happens to us. It is something we create. We must not confuse a tool with a goal. We must, therefore, be sure that technology serves the fundamental purposes of higher education. That will be more difficult than it sounds.

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