Katz believes that too many institutions have not considered the use of information technology within the context of their educational goals. Instead, campus leaders are reacting to technology rather than understanding that they can affect its design and application for higher education. Information technology, Katz reminds us, is not a given, but rather a socially constructed phenomenon. A strong supporter of the use of technology in teaching and scholarship, Katz urges that technology be used as a tool to enhance these fundamental educational endeavors rather than treated as a goal in and of itself.
Where am I coming from? You have a right to ask. I am certainly not an expert on information technology (IT), nor is it clear that I am much of an authority on higher education. I am simply a liberal arts humanist, a specialist in history and law with some administrative experience. However, I have been in higher education, one way or another, for almost half a century. My current perspective on higher education, and on the educational impact of IT, comes mainly from the 11 years I spent as President of the American Council of Learned Societies (ACLS), this country’s national humanities organization.

Shortly after I started to work at ACLS in 1986 and began to evaluate the national situation of the humanities fields, it became clear to me that the startling innovations in IT constituted the single most important set of influences on humanities teaching and research. I was surprised, since I had assumed that the new technology was important mainly in science and, to a lesser extent, social science. Humanists, after all, are people of the book and the manuscript, workers with libraries, pencil, and paper. But as I traveled and observed, I discovered the remarkable extent to which technology was changing the way humanists did their work.

I should admit that, during the course of my investigations of the impact of IT on the humanities, I have become an ardent proponent of the use of IT in teaching and scholarship. Not, I hasten to add, that I am not particularly adept as a practitioner; I am simply a fellow traveler increasingly well informed about technology. I am also a long-time enthusiast for the academic potential of IT.

My subtitle, “Making IT Serve the University, Rather Than the Other Way Around” should make perfectly clear where I stand on the issue of current trends in the use of IT in higher education. To state my conclusion at the beginning, I believe that we too often react to IT, rather than thinking creatively
about how it might enrich our basic educational mission. My favorite slogan is paraphrased from Aristotle: “Everything that is necessary is necessary upon some hypothesis.” The purpose of this essay is to challenge you to articulate the educational goals around which your institution is planning its use of IT. We should not be planning for IT, but rather considering how IT can serve our educational goals.

The medievalist-technologist James O’Donnell compared the current situation of IT in higher education to the situation of American railroads in the 1950s: “If the railroads of the 1950s had known they were in the transportation business instead of the railroad business . . . more of them would still be in business.” He added, “If we [educational administrators] think we are in the information business, we make the same mistake of confusing a tool with a goal.” Later, O’Donnell made the same point in even more straightforward terms: “To use our new technological tools to change education, we must know what it is we are trying to do – what the purpose of education is.” Bingo! Aristotle could not have put it better. IT is a tool. In itself it has nothing to do with higher education. But of course we can confuse subject and object, and draw education conclusions from IT, rather than the other way around. That is what I believe we are doing with IT in higher education, and I believe it is a profound mistake.

But let us do a tour d’horizon of the impact of IT on higher education, remembering that IT is not a given, but rather a socially constructed phenomenon: garbage in, garbage out; bad applications, bad results; inappropriate design, inadequate performance.
During the 1950s and 1960s, computers were used on campus primarily for scientific research, with some use of technology for instructional and administrative purposes by the late 1960s. 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 1980s that the computing environment began to change and university departments were able to buy their own microcomputers. Then, in the mid-1980s, on-campus computing was radically transformed when the personal computer revolution took hold; and more imaginative and widespread development of instructional technology began. Soon after that, the Internet combined with the digital and telecommunications revolutions, set off a stunning expansion of computing, and increased the range of computing possibilities. By the turn of the century, IT pervaded the campus, and the IT era had arrived in all its costly and confusing glory.

Computing and IT emerged on campus with little broad discussion of its larger educational implications and even less about the relationship between the rapidly expanding technological revolution and the fundamental purposes of colleges and universities. During the 1990s, a land-rush mentality prevailed. The excitement was partly driven by the possibilities opened up by the Internet, and also by the hype of computing by both the federal government and the business community, from whose ranks universities draw many of their trustees.

In sum, the introduction of computers to higher education greatly influenced IT’s tremendous impact on campuses. Throughout the course of the development of computing on
campus, educational goals generally have been secondary to organizational and financial concerns.

I realize that this summary does not do justice to the history of IT in higher education, but I hope it provides a context for my discussion. We can see the tangible presence of IT all around us and in every aspect of our institutions: administration, libraries, scholarship, and teaching. Not so obvious is that the technology had to be introduced to the campus the way it was, that it had to be managed the way it was, or that very different sorts of financial decisions might have been made in the process of introducing IT. We need to think about who made (and makes) these decisions and even harder about who determined (and determines) the standards according to which the decisions are made. What was the hypothesis? What were the educational goals? Above all, we need to put all strategic decisions about IT into the context of thoughtful and purposeful educational policy.

CAMPUS POLICIES AND PRACTICES

What follows is a brief survey of a number of areas of campus policies and practices that raise concern for the potentially adverse effect of IT on them. I will mention each area only briefly, but hope these examples will illustrate my larger point—that we must not confuse tools with goals.

Surely one of the major educational activities most deeply affected by IT is the library. 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 catalogue, especially the capacity to search online across library catalogues, offers tremendous new research power. The library
now provides online access to databases around the world, so networking has multiplied the power of computing. Remote access to library databases — the virtual library — means that the library as a place, as a physical facility, is potentially less important than before.

As a technological enthusiast, I do not find the mechanics of the transformation of scholarly communication by IT 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 gone into how IT changes libraries, as well as to how it is (or is not) transforming the processes of teaching and scholarship. Do we know what we want the virtual library to be and to do? Are enough money and appropriate personnel allocated to libraries to perform their potentially expanded role in both teaching and scholarship? Do library directors have sufficient independence, resources, and training to lead libraries into the new era? What is the most desirable relationship between the training of faculty and students to use IT and the expanded functional mandate of the library? Does the teaching and learning center belong in the library? I suggest that the library of the IT era needs to be broadly reconceptualized as we think our way into the college or university of the IT era. What is the library’s goal in this era? How should the library be restructured to attain this goal?

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**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.**
A closely related area dramatically affected by IT 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. The library also is struggling to determine whether the law will permit the full development of e-reserves or the copying of digital collections for educational purposes. The new licensing regime creates comparable problems for individual scholars and everywhere else in the university where software is purchased and used.

At the moment, however, the hot issue concerning intellectual property has nothing to do with the library and everything to do with the development of educational software. Put simply, universities now want to control faculty members’ potentially profitable electronic publications under university patent law policy rather than their previously existing copyright law policy. For years universities have asserted that patents created by scientists and engineers are the intellectual property of the university, since they were created in expensive university laboratories. Faculty members share in the earnings of registered patents according to well-established formulas on each campus. Also, in the past faculty members have been permitted, indeed encouraged, to copyright their own books and articles, and to retain any profits from royalties. Now comes courseware — software used for teaching and frequently for research — with the potential to be highly profitable. It also relates more closely to the teaching function for which faculty is primarily employed.

University administrations have responded by attempting to expand the patent policy to cover courseware and claiming that the software belongs to the university, with a profit-sharing arrangement for the faculty. The faculty, as e-publishing scholars, is thereby being reconceptualized, without their consent, as workers for hire. How much enlightened contem-
plation has addressed 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 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 courseware copyright policy issue is one of the many ways the law of intellectual property, as applied to IT, is changing the way a university works and relates to its constituencies.

A third area of concern with respect to the impact of IT is distance education. Who would have thought, only a few years ago, that our great universities would now devote so much apparent effort (and so much money) to what a decade ago probably would have been called continuing education? Most of the elite private universities, after all, 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 distance education. Would that have happened without the new IT? Not a chance, so far as I can see. Too much of what is now called distance education in 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 goes into using technology to deliver a better quality educational experience rather than fattening the university 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 remotely? How does virtual education on the campus differ from distance education? IT

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empowers us to provide access to information and guidance in every dormitory room on campus, after all, and we need to think how to use that power in conjunction with the physical presence of faculty and facilities.

Is it a problem, by the way, that our libraries have fewer and fewer students every evening? Is sitting in front of a terminal truly the best way to learn? Or, for that matter, does the use of interactive teleconferencing technology affect the learning process and, if so, how? This ought to be recognized as the educational problem of distance education.

My fourth problem is commercialization. Distance education is hardly the only evidence of the commercialization of higher education in response to IT. The emergence of a potentially thriving proprietary virtual university sector (the University of Phoenix, Sylvan Learning Systems, and DeVry) gives most of us pause. The change in university attitudes on copyright law given the commercial potential of software offers another example of the phenomenon. But, more importantly, the general impulse to become the university.com is quite pervasive these days, however poorly understood and articulated. Arthur Levine and other cheerleaders for commercialization have been quite clear about what is at stake: if the universities do not act, the moment of opportunity will be lost. I believe they are dangerously wrong.

At one level, the universities are simply going through what all nonprofit cultural institutions encounter as they seek to
reinvent themselves as virtual institutions, living as much on the Web as museums, libraries, and historical societies. The problem in going virtual is not primarily in developing the technology, although that will always be a substantial challenge, but in constructing a viable business plan. How are trustees and administrators to recover the enormous costs of “digitization,” equipment purchase, and maintenance, and retain high-priced, high-tech employees? The development of business plans for digital collections in museums and libraries, for instance, is extraordinarily complex, and it is not clear how to recover developmental and maintenance costs. It is difficult enough to develop income streams to simply maintain the databases created at such great cost. But when one attempts to move beyond cost recovery and attempts to produce surpluses (as we in the nonprofit world call profits), the matter becomes more complex and more troublesome. Few nonprofits have the capital resources to develop ambitious digital programs, thus they are turning to for-profit alliances and the capital markets to make their move into the digital era. The larger question is whether the nonprofit university subverts its mission in its quest for IT-related income. Doesn’t it matter that some of our finest universities are beginning to behave like proprietary educational institutions?

I have neither the time nor the knowledge to fully describe the multitude of ongoing strategies to build electronic programs and to enrich the university virtually. I am probably much too cynical — doubtless, some of these efforts are genuinely motivated by the desire to improve education through technology. Still, judged by their press releases, none of the most highly touted schemes strikes me as primarily motivated by educational policy. Again, the mood seems to be that if “we” do not do it, “they” will, taking the money with them. I am thinking about Fathom, e-Cornell, uNext, and other for-profit consortia offering Web-based sites. Perhaps we should
call this the era of U-Portal.com, or the university as portal. Question: What is the difference between Yahoo or AOL and Columbia University? Answer: Less and less. My point is that such commercial efforts indicate that the tool seems to have become the goal.

I could go on, but my point is 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 review, monitor, and evaluate these developments? Have we given enough thought to how we can employ IT thoughtfully and self-consciously to meet our explicit educational policy goals?

PROPOSED SOLUTIONS

What should we do? I have provided examples of what I believe is a general problem in the way institutions of higher education deal with IT. I do not pretend to have a program designed to cure all the ills, but would like to propose a few approaches for the near term.

First, I think that most institutions should review their governing rules and formal educational policies, in the context of the new technology, to take into account the new relationships and dynamics created by IT. The one area in which action has begun is in intellectual property, for which some excellent university statements have been drafted. But we definitely need specification and clarification of the rights and responsibilities of faculty, students, staff, and administration in this new environment. Our governing assumptions, for the most part, remain premised on an analog environment and do not
take into account the educational ecology of the IT era. Some of the problems are already quite apparent: ownership of courseware; the legal terms of faculty employment; allocation of faculty time to outside dot.com activities; copying of research and teaching materials; limits on the use of the Internet (and intranets) for faculty, staff, and students; electronic privacy; rules governing the authority of research material taken from the Web; implications of the use of university IT equipment; and many, many more. I am not proposing a rule-bound environment; rather, I advocate that educational institutions put on the table some general propositions for roles and responsibilities in the IT era. We need to better understand how to relate to one another in this environment. What are our goals and guiding principles?

Second, I think that we have to consider reorganizing some aspects of the authority/command structure of the institution to move IT decision-making into an educational perspective. The emergence of the upper level administrator for IT, often called the chief information officer, or CIO, was one of the first university administrative responses to the need to cope with IT. This office is frequently in conflict with the campus librarian and, for that matter, with administrators of other educational units. As my friend Barry Sullivan of Washington and Lee University observed, for the most part, “The IT people keep doing basically what they’ve been doing and the library keeps doing basically what it’s been doing, each wanting to take over the other’s empire, but not going to the trouble in either empire 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, since that has usually been the institutional priority. Some institutions are experimenting with combining the CIO and the librarian, and that may prove 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. While I do not know the answer, I think we must create authority structures that evaluate technology needs and opportunities more in terms of intellectual and educational needs rather than administrative imperatives. It might not be a bad idea to find CIOs who have experience in teaching and research, so they will be part of the academic culture.

A related observation is that institutions of higher education are under investing in the human resources necessary to bring the teaching and research functions of the university fully and quickly into the IT era. Many good examples show how this can be done. The Institute for Advanced Technology in the Humanities at the University of Virginia is my personal favorite. Too many campuses leave it to students and faculty to educate themselves on how to use the technology. I am particularly concerned about instructional technology. As I have already suggested, we seem to think of IT instruction primarily in the context of delivering education off-campus, whereas remote access to teacher and information is in fact the reality of all instructional technology, including education on-campus. Serious questions address the impact of technology on the learning process, and we need local experts to help us work them through. Who such experts are, where and how they are trained, and where on the campus they should be based are serious problems that require immediate attention.

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Too many campuses leave it to students and faculty to educate themselves on how to use the technology.
Finally, we must continue to pursue the collaborative possibilities that seem both feasible and urgently necessary in the IT environment. Libraries have collaborated for a very long time, and we urgently need new possibilities for digital collaboration. Distance education is another area in which inter-institutional collaboration is emerging. Technology makes teaching, reading, and researching all rather easy to do in a multimedia, multi-institutional environment, and the tremendous costs of technology may force us into the sort of collaboration to which we have paid mostly lip service in the past. Further, the entire world is available in an era of virtual communities. We can now begin to make good on our aspirations to internationalize the campus. If we plan such consortial activities with thoughtful attention to the educational values involved, we will serve everyone better.

A TOOL, NOT A GOAL

My very simple point is 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 means that on each campus we must determine what our fundamental goals are, and how technology can serve them. That will be more difficult than it sounds.

NOTES

2. From an e-mail communication Sullivan sent me on August 14, 2000.
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