

Life after Graduation Day: Beyond the Academy's Digital Walls

Since at least the 1970s, higher education has served as an incubator and proving ground for ways in which advanced information technology and digital content can change the way that we live and work. Indeed, we now speak of academic environments that permit us to “live a few years in the future” as a way of stimulating and understanding technology innovation. Yet colleges and universities have created not just innovations; they have created social and professional adaptations around these innovations and have thus created public demand for, and understanding of, these innovations. Graduates expect and demand the kinds of facilities that they grew accustomed to and relied on during their student days; they bring these demands and expectations to their workplaces and to their personal and social lives. Graduates also educate and inform others who have not had the opportunity to “visit the future.”

Unfortunately, the transition from a technology or service within higher education's incubator to one broadly available to the public is not always simple or quick. For example, there is no question that higher education created much of the consumer and commercial demand for the Internet by exposing huge numbers of people to its benefits and potentials; many of these people subsequently became evangelists or entrepreneurs. Consider the transition of the Internet infrastructure and of services such as electronic mail—and, later, the Web—from the higher education and research community to industry and the consumer public, and recall the messy compromises involved in acceptable-use policies

and entangled research and commercial networks. Remember the complicated and sometimes dubious arrangements that people worked out in order to continue to enjoy Internet access through their college or university after they graduated because they had no reasonable alternative way to get this service. There was a gap of some years between when colleges and universities first started creating demand through their graduates and when the commercial marketplace was prepared to service this demand, particularly at reasonable prices.

Today, ubiquitous broadband access to the Internet—both high-speed wireless connectivity across the campus and hundred-megabit Ethernet “to the pillow” in dorm rooms—is not only leading to the development of new applications (and new social practices around them) but also fueling future consumer and business demand for advanced broadband services. As we look at examples of technologies and services that focus on content rather than computation and communication, however, the picture becomes more complex and less comfortable.

Over the last decade, a growing number of schools have immersed their students

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in a veritable ocean of licensed, proprietary digital content that supplements the massive public-access resources of the Internet. But the schools do not own this content; academic libraries negotiate—on behalf of their faculty, students, and staff—contracts with the publishers and other service providers who hold the rights to the content. A major university today pays millions of dollars per year for such licenses. These collections of digital information and the accompanying access and analysis tools play two roles: they serve both as a general-purpose research collection and as specific disciplinary resources that are sometimes actually taught as part of the curriculum.

What about the individual who wants to enter and inhabit this ocean of digital content but lacks any affiliation with higher education—or who wants to continue to live in it after graduation? A good deal of material is affordably available. Members of a professional or scholarly society get access to the society's publications as a member benefit. Much mass-market-oriented content is readily licensed or purchased. More commonly, however, scholarly or technical content is offered under

site licenses that are targeted at organizations. Larger research-oriented companies (technology, pharmaceutical, engineering, financial, etc.) may license specific scientific, engineering, medical, financial, or other focused content for their corporate communities; often these are the same as, or very similar to, the databases licensed by academic libraries. But many suppliers are not set up to license to individuals or small businesses; others want to charge absurd prices. These content providers have concluded, accurately or not, that there is not an economically viable consumer and/or small business model worth pursuing; perhaps they have made it a self-fulfilling prophecy.

Libraries offer a substantial safety net. Public libraries often have site licenses for fairly extensive proprietary information resources, though the terms of their licenses frequently require that access be limited to patrons who are physically present in the library and forbid remote access via the network. And not unexpectedly, given the size and diversity of their constituency, the resources available through public libraries often omit the very specialized or scholarly materials offered by university research libraries in favor of more general-purpose content. For some specialized professional materials—for example, law or business—academic libraries may enjoy special discounts unavailable to public libraries because vendors want to introduce students to the products, and public libraries cannot afford the commercial-rate licenses. Public libraries can also obtain scholarly books and journals through interlibrary loan today, though as these materials cease to be produced in print form, license restrictions may prevent this. In addition, as a matter of policy, most state-funded college and university libraries (and some private ones) make virtually all of their licensed resources available for onsite use by members of the public who physically visit the campus as well as for both onsite and remote use by members of the campus community. This makes such libraries an enormously important resource of last resort for the public but realistically impractical for most people most of the time.

Higher education institutions and

their faculty have an obligation to think carefully about which tools and resources they incorporate into the curriculum, and questions about price and availability beyond the academy's walls need to be on the agenda as they make choices. In a world where professional practice depends on access to information and analysis tools, price and availability will determine if a newly graduated engineer can function in a Third World country or if a new physician can work effectively as an independent rural doctor. The parallels here with the debates about adoption of open-source software in education are provocative.

But the issues go deeper than choices in professional education. They reach to the ability for individuals to continue to engage in scholarship, research, or large areas of intellectual life on an ongoing basis without some type of relationship to a higher education institution that provides access to its licensed information resources. Higher education is supposed to do more than just produce professionals.

It is not uncommon—at least historically—for people to graduate from the academy with a lifelong avocation for literature, history, mathematics, or other subjects even though their careers may take them in totally different directions. (Keep in mind also the job market in some of the humanities.) They have been able to do this without remaining connected to their schools. But as content migrates into sophisticated electronic editions and systems, will graduation mean exclusion for these people, as well as for those who never had the opportunity to attend colleges or universities? The implications for historic ideas and assumptions about “liberal education” and public engagement with scholarship are profound. And an informed public can no longer function without extensive access to information resources.

A growing number of people within the higher education and research world are uncomfortable with the widening gaps in public access to scholarly and scientific content. There are a variety of initiatives under way to make more and more teaching and research materials publicly accessible without barriers—the e-print and preprint archiving movements, the development of institutional

repositories, the free and open scholarship programs, increased commitment to open-source software, and the grassroots move to place materials on personal and departmental Web sites.

For the proprietary content, we need initiatives so that material of little interest or economic value beyond higher education can be made available to interested alumni via their alma maters and to public libraries for licensing at very low costs. For material with significant commercial market outside higher education, we need to better understand the problem: how much access is really lost—and to what classes of materials—when one goes beyond the walls of the academy? Systematic studies would be very helpful here, and are past due.

The stakes are about to go up dramatically. Higher education is moving beyond the initial stages in creating a whole new constellation of digital content and related tools. Courses and their supporting materials are moving to the Internet. Students are developing electronic portfolios of their work. Scholars are learning to author the digital descendants of books. Computationally driven tools that link content and that integrate content from many sources are in advanced stages of development. We are pursuing the vision of digital libraries that are more than the sum of their parts and that integrate content from numerous sources, many of them licensed. The whole nature of scholarship—as well as the relationships between the practice of scholarship and the digital corpora that document and support it—is going to fundamentally change. Access to printed journals and books alone will be less and less adequate.

As we advance into these more transformative areas of digital content and information technology, we are obligated to consider not only their direct effects on teaching, learning, scholarship, and the stewardship of our intellectual record but also their very real implications for the shaping of the intellectual and professional life of those beyond the academy's walls.



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