Opening Up the Academy: The “Open” Agenda, Technology, and Universities

“O
pen access” is entering the mainstream. What began as the vision of a few enthusiasts over a decade ago—to make research literature freely available—is now becoming achievable. Many large research funders now have policies promoting open access, many research universities and many subject communities now have open-access repositories to house papers, and many large journal publishers now allow authors to make their work openly accessible in some way (either by self-archiving in repositories or by open publication in journals). Open-access publishers, such as Public Library of Science (PLoS) and BioMed Central (BMC), are respected in their fields and publish journals with high impact factors. The business model they operate is recognized to be viable, with perhaps the greatest demonstration of this coming when the mainstream publisher Springer bought out BMC in 2008 in order to get an “in” to open-access publishing.

Outside the academy as well, greater openness is seen to make sense. In May 2011, the U.K. Minister for Universities and Science, David Willetts, told the Association of British Science Writers: “Transparency is at the heart of the Government’s agenda, and this also applies to published research. In a recent discussion with members of the research community and publishers I stressed the importance of open access to this information for everyone.” Similar statements have been made by senior government representatives in North America, Australasia, and Europe. In addition to governments, many charities and non-governmental organizations (NGOs) now explicitly support open access.

Open access to publications is not the only current “open” agenda. There is a drive to make other academic outputs openly available as well. Many scientists now promote “open data”—sharing of research datasets to facilitate reuse. In the teaching and learning arena, many institutions now support “open educational resources”—making online learning objects publicly available. At the same time, many librarians now advocate for “open bibliography”—improving access to descriptive data to enhance search and retrieval of publications.

Much of this builds on the well-established field of open-source software. Open source has had traction for some time, in colleges and universities especially, and has been further strengthened by the support of organizations such as Creative Commons. While many open-source systems remain niche, others have become absolutely mainstream. Open-source learning management systems, such as Moodle and Sakai, and portal software, such as uPortal, are now widely deployed. There are even increasingly credible moves to develop open-source student records management and financial systems.

To date, many of these open agendas have been pursued by different groups in higher education institutions along parallel tracks. Software engineers have worked on open source, and learning technologists have developed open educational resources. Librarians and some scientists have been advocates of open access to scholarly literature, and data managers and other scientists have promoted open data.

Although all of these initiatives have been enabled by a common technological base, particularly the web as an efficient delivery mechanism, they have often gained support because of different immediate drivers. Open access, for example, is often promoted as giving individual researchers a greater profile and citation advantage. On the other hand, open educational resources are often used to promote an institution’s public profile—and to give prospective students a taste of what they can experience if they register at the institution.

The success of these largely independent initiatives does, however, raise a question: should they continue to be pursued separately, allowing the individuals involved to get on with it, or is there a case for greater coordination as part of wider institutional strategy? The answer to this question lies partly in what the different initiatives have in common.

Some common benefits are beginning to emerge. Drawing on recent work by Malcolm Read, Neil Jacobs, and Rachel Bruce of JISC (the United Kingdom’s Joint Information Systems Committee), we can pinpoint six benefits that apply (to a greater or lesser extent) to all of the “opens.”

First, openness gives content greater visibility and creates the right conditions for enhanced impact. This is exemplified in both “academic impact” (e.g., through more citations of published works) and “societal impact” (e.g., through improved

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knowledge transfer). Second, “open agendas” create greater potential for the reuse of material. Activities such as the text and data mining of open content and the reuse of learning objects illustrate this potential.

A third common benefit of the open agendas is that they support innovation and agility. Openness often means that resources get into the public domain more quickly and can be deployed more flexibly. A fourth point is that open initiatives can improve cost-effectiveness. Work carried out by John Houghton and his collaborators in the area of open-access publishing and dissemination has illustrated this very clearly. Other cost benefits, such as reducing unintended research duplication and improving collaboration, are also becoming clearer across the different “opens.”

Fifth, openness can improve quality by opening up material to wider scrutiny and testing. Making resources “open” creates incentives to ensure high quality, and there is evidence of this in a number of areas, including online learning resources. In a 2009 evaluation report, 21 percent of participating MIT faculty stated that the OpenCourseWare (OCW) initiative “increased the quality and organization of their materials.” Finally, openness can enhance and protect institutional reputation. Once again, evaluations of the MIT OCW suggest that the showcasing of the MIT curriculum and its faculty has improved the institution’s reputation.

Underlying these common themes is perhaps something more fundamental. They all seem to exemplify a single basic rationale: sharing leads to mutual benefit. In particular, sharing knowledge can benefit a community by helping all of its members further their aims.

The theoretical framework for this rationale has been explored by the Nobel laureate Elinor Ostrom who, along with others, has posited the idea of the “Knowledge Commons.” Ostrom’s early work looked at shared resources such as forests, fisheries, and social services and examined how consumption of these can be managed for mutual benefit. But her work on knowledge illustrates a crucial difference: knowledge is not diminished by its consumption. Whereas fisheries and social services are depleted by use, knowledge is not, making it particularly conducive to sharing. Further, knowledge is cumulative; sharing it thus has the effect of growing the resource.

This does not preclude competition, of course. The creation and dissemination of knowledge in colleges and universities can and does create competitive advantage. That sometimes means holding onto some knowledge for a period of time in order to protect intellectual property. But in other cases, competition is based around early contributions to the shared knowledge base. The competition to claim priority in a particular new idea, for example, is actually enhanced by greater sharing. At the heart of the open agenda is the search to find better ways of achieving this competitive sharing.

As knowledge organizations, universities and other research institutions have the potential to play a central role in the knowledge commons—and not just within the scholarly community. This is illustrated by the current investigation being carried out by the Royal Society, the premier scientific organization in the United Kingdom, on “science as a public enterprise.” Writing in the *Lancet*, a number of the members of the Royal Society’s investigative panel observed that scientific work has traditionally been detached from mainstream society. They added: “But such detachment is now questionable as science profoundly changes the lives of citizens, and scientists collect more and more evidence of the human assault on the natural systems of the planet. Science has become woven into the fabric of modern civilisation and should be, and be seen to be, a public enterprise, not a private enterprise done behind closed laboratory doors.”

This is a significant challenge. Institutions, as well as individual scientists and subject communities, need to consider their response to it. Colleges and universities need to develop strategies that promote and support science becoming a “public enterprise.” Openly sharing academic outputs and then developing approaches to explain them more fully are important parts of such strategies.

Together, the open agendas—open access to the research literature, open data, open educational resources, open bibliography, and open-source software—can make an important contribution to institutional strategies to support science (and all research) as a public enterprise. Greater openness pursued as a matter of organization-wide policy can help to disseminate knowledge for the benefit of not only the research community but society in general. Rather than letting enthusiastic individuals continue on their own, higher education institutions now need to grasp the strategic implications of managing and sharing their knowledge more fully as a way of making an even more positive contribution to their communities and society.

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