

## Opening access

**As the continent prepares to spread its R&D wings, it's clear we don't know everything about the point of departure. What is good African science, how much of it is there and who is taking any notice?**

The scholars who descended on Leiden this month to discuss academic publishing in Africa may not have known it, but their presence was a homecoming of sorts. The Dutch town was the 16th century home of Lodewijk Elzevir, founder of science publishing giant Reed Elsevier. The subject under discussion-opportunities and threats for developing countries in the digital era-is timely. Early next year, an African inter-governmental committee will meet for the first time to start developing truly African science and innovation indicators.

Metrics commonly used to assess research and innovation output, like citations and patents, do not serve African countries well. African journals generally fail to reach the international stage. Thompson Scientific, the company whose international index dictates who's who in scientific publishing, in 2005 contained a paltry 22 African journals, of which no fewer than 20 were South African. Patents, meanwhile, pick up only a narrow sliver of innovation that takes place in developing countries.

However, a lot has happened in the last decade. With the e-publishing potential of the Internet forcing a new world order, publishers like Elsevier who once ruled the roost now grudgingly agree to waive copyright for articles to be placed on institutional repositories, or open access sites. By drastically cutting publishing costs, the Internet has become a democratising tool helping developing countries showcase their science.

Eve Gray, an expert in scholarly publishing currently studying research publication policy and practice in South Africa, says the new methods of dissemination are increasing the impact of research. "This is important in an environment in which the government feels that it is not getting enough 'bang for the bucks' it is spending on higher education. But this is all too often happening in an informal way and outside of the systems for recognising research contributions-and often without the support of the institutions."

Ambitious initiatives to increase the impact of African science already exist. The African Journals Online (AJOL) portal was created in 1998 in order to increase the visibility of African science. The service gives free access to abstracts of research published in hundreds of African journals (230 in January 2006). It also offers a delivery service for full papers, free of charge, to researchers in developing countries.

The AJOL was given the thumbs up by an evaluation of it published earlier this year. In 2005 almost 3,000 articles were ordered, 70 percent by African researchers. Nigerian and South African users dominate on the continent, while globally Asia and North America clocked up the most registrations.

IF AJOL IS BRINGING African science to the world, it is but a small step on the long road to success. In May this year, the Academy of Sciences of South Africa (ASSAf) published a study that showed that in the past 14 years, a whopping one-third of the country's journals had not had a single paper cited by their international counterparts. The academy called for immediate government intervention to improve the state of affairs, including giving universities high-speed Internet connectivity, subsidising open-access publishing to increase visibility and introducing a system of quality control.

Following the report, the South African government has agreed to invest in high-speed bandwidth and programmes are underway to improve visibility and quality.

The problems highlighted in the study are not relevant only to South Africa. ASSAf president Wieland Gevers told Research Africa that the problems identified in the report are endemic throughout the continent. "Africa has enormous numbers of journals that are totally invisible because nobody knows they exist," he said. The Thompson system is a "closed club", so countries need to find innovative solutions to the problem of exposure.

Other developing countries have come up with schemes that Africa could watch and learn from, he says. "In the southern parts of South America-Brazil, Chile and Argentina-schemes have been developed in which the government sponsors open access for selected journals they want to make sure are seen on the world stage." India has adopted a similar approach. Dedicated government support, he adds, will be crucial.

How open access will take place in Africa is not yet clear, he says. But it will happen whether publishers, governments or the researchers want it or not. "How it happens, and how efficiently it happens, is what we intend to see optimised, but there is no doubt at all that it will happen."

So what about quality? This is-perhaps not surprisingly-intrinsically linked to visibility. In responses to the AJOL evaluation, journals reported that submissions to them had increased and diversified after they had joined the service, thereby raising the quality of the content. One editor from Ghana wrote, "AJOL [...] has enabled us to reach people from around the world. We are now getting submissions from Ghanaian and African students the world over. [...] With a diverse authorship, we are now able to pass on to our students, faculty, researchers and other readers varied research from various perspectives."

"IT SEEMS THAT science in Africa is on its way up. Or at least, there's this new sense of optimism," says Robert Tijssen, a senior researcher at the Centre for Science and Technology Studies at Leiden University. In the paper he presented at this month's conference, he showed that although research papers by African authors between 1980 and 2004 had low international visibility in the Thompson index, there were several high-quality journals that still managed to reach an international audience.

Africa needs a journal-based information system including both Africa's internationally-oriented journals and those that currently reach local audiences only, Tijssen says. But what seems to be lacking is a genuine interest at government level in building capacity in information and library systems.

He has a point. The AJOL service faces uncertainty after 2007, when its core funding runs out. At the moment, only a small amount of the costs are recovered through the fees paid by developed country researchers who order papers through the site. The lion's share of these fees goes back to the journals, who are worried about losing revenue if they make their papers publicly available. At the beginning of 2006 there seemed to be no clear plan for how to keep funding AJOL in the long term.

And the question remains-how should the success of efforts to boost R&D and innovation in Africa be measured? This is a question the inter-governmental committee on science and innovation indicators will tackle next year. Focusing only on patents and journal articles, policymakers may miss out on the very concrete benefits that they are after.

Things like healthier people, improved ICT infrastructure and more stable food production. It becomes clear that Africa needs to think outside the box about what it considers to be its science outputs. After all, you can't eat patents.

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