

South African responses to Open Access publishing: a survey of the research community

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Open access publishing offers wide benefits to the scholarly community and may also afford relief to financially embattled academic libraries. The progress of the open access model rests upon the acceptance and validation of open access journals and open archives or institutional repositories by the academic mainstream, particularly by publishing researchers. To what extent are the key actors in the South African research system aware of the advantages of open access? This article reports on the findings of a recent survey undertaken to assess the current awareness, concerns and depth of support for open access amongst local researchers, research managers and policy makers in South Africa. The study focuses on issues of quality, article or author charges and the established academic reward system. It concludes that within the prevailing framework, there is little prospect that academics would choose to publish within open access journals. Recommendations for advocacy by the library community are proposed.

Keywords: open access, scholarly

up costs on the distribution end. Author fees or article charges are used as the business model by a few well-known open access publishers, notably BioMed Central and Public Library of Science. Several mainstream publishers (Springer and Blackwells, for instance) are experimenting with open access and have introduced “author’s choice”, a mechanism that allows authors to opt to pay article charges in order to render such articles open access. While less than half of existing open access journals levy such fees (Kaufman 2004) and authors in developing countries are exempted from these charges, it was considered important to test the views of local researchers about the prospect of article charges.

Previous studies

Since open access is disruptive of a protocol that has been in practice for several centuries, those sectors that have a direct interest in the promise or threat of this new publication model – government bodies, publishers, research funders, amongst others – have commissioned studies to discover whether open access represents a viable alternative. An eight-month inquiry was conducted under the supervision of the Science Committee of the UK House of Commons during 2004. The Committee examined experts’ submissions and heard public evidence provided by representatives from the scholarly publishing industry, librarians, academics and government departments. Amongst the recommendations in the official report (Science & Technology Committee 2004a) was strong support for the establishment of institutional repositories at all British universities and a proposal that further research be made with regard to the “author pays” business model of open access journals. The Joint Information Systems Committee (JISC) in the UK has contributed two important studies. One project (Swan & Brown 2004) entailed a survey of two groups of authors, those who had published in open access journals and those who had not. It found that the prime reason authors had not submitted to open access journals was that they were not aware of suitable titles in their field. This raises the question of the role that librarians might play in advocating and raising faculty awareness of suitable open access channels. The other JISC study (Waltham 2005) provided a close investigation of the business and pricing models of nine learned society publishers and their experiments with “author’s choice”. Waltham reports that there has not been a strong “pull” from the author community, despite increased support from funding agencies that are willing to cover the cost of article charges. One major research funder, the Wellcome Trust, has mandated that all the research it funds be deposited in an open archive, or published via an open access journal. Its own study of the author pays model (Wellcome Trust 2004: 22) concluded that “[o]pen access author-pays models appear to be less costly and to have the potential to serve the scientific community successfully”.

Besides these studies by stakeholders, individual researchers have conducted independent research. These studied author opinion (Rowlands, Nicholas & Huntingdon 2004), assessed the author-pays model (King & Tenopir 2004), and measured how open access influences individual articles’ impact factor within different disciplines (Brody *et al* 2005). Bjork (2004) has contributed a study of the potential obstacles that might prevent or delay the broad uptake of open access.

In South Africa, the only previous study was conducted by De Beer (2005) and found very limited knowledge and experience of open access amongst faculty in the disciplines of computer-, library- and information sciences. She also visited the websites of over 200 academic units at Stellenbosch University to detect any evidence of self-archiving or participation in open access journals. Interestingly, she found more investment in open access amongst humanities and social sciences than amongst the units representing the natural sciences.

Survey targets

The survey was aimed at three different groups of stakeholders in South Africa: publishing authors, research managers at universities, and official research organisations that are responsible for developing research policies or that produce leading research.

Because academics and scientists are the prime change agents who will, through their publishing behaviour, determine whether open access journals become widely accepted as a platform for publication, this group was an important target for the survey.

The study focused on recently published authors in biomedical fields. This delimitation was chosen for three reasons. Firstly, biomedicine is one of the more richly endowed research areas, possibly because it represents one of the strategic frontiers of science. Since biomedicine tends to be well funded, it is a field that is more easily able to accommodate the imposition of author fees. It was considered more important to ascertain the response of authors towards the idea of article charges than to probe their affordability at this exploratory stage. Secondly, BioMed Central already fields a portfolio of 130 reputable open access journals that span the breadth of biomedical specialities, so that it is likely that researchers have encountered them. Lastly, PubMed Central, the open archive of online biomedical articles hosted by the U.S. National Library of Medicine, is a well-known source of freely available peer-reviewed articles. In short, this field was

chosen as it is one of the early adopters of open access publishing and is one of the critical research areas for developing countries, offering much scope for the promise of open access to advance science.

The ISI *Web of Science* was used to harvest the email addresses of 500 South African biomedical authors that had published during the period June 2004 to June 2005. A response rate of 29% was achieved (145 respondents).

It was also recognized that, beyond their personal inclinations, authors are strongly influenced by the norms of the established academic reward system. For this reason it was necessary to gather responses from those responsible for evaluating researchers, policy makers and opinion leaders. Without some adjustment of the criteria used to evaluate researchers, it is unlikely that there will be any change in the publishing patterns of researchers.

The survey targeted the Deans of Research or Deputy Vice Chancellors (Academic) at the 21 public universities and the CEOs or their delegates at 13 governmental organisations². 11 university research managers (52,3%) and 8 representatives from official research organisations (61,5%) completed the questionnaires. The targeted individuals were sent an e-mail that outlined the purpose and aim of the survey and that provided a link to the online questionnaire. Once respondents had completed the questionnaire and ticked their agreement for their responses to be used, the online form was submitted to a database. The three questionnaires were tailored to address the priorities and concerns of each group, yet still featured substantial overlap, in that there were several identical questions addressed to all groups.

Do they know what open access publication is?

Respondents were asked whether they knew anything about open access. Those that answered in the affirmative were invited to explain what they understood by this term. With a few exceptions, these free text responses showed that they did in fact know about open access publishing. It was revealing to discover that, despite fairly widespread coverage of the open access debate, knowledge about it is uneven amongst these groups. Of the 11 responding university research managers, 8 (72.7%) successfully identified the important tenets. Proportionately, fewer of the biomedical researcher group were satisfactorily able to express the fundamentals about open access (88 of 145, or 60.7%), while only 3 of the 8 official research organisations (37.5%) were clear about what open access means. Given that this latter group represents the keystone of South Africa's research, this result is surprising and highlights the need for explicit advocacy or awareness building at the policy making level.

Nevertheless, the responses provided insight into the interests of the responding groups. Figure 1 presents a few excerpts.

...Making your publications freely available on the www, either by publishing online in free journals, or by obtaining publishers' permission to lodge copyrighted material in an open access repository after publication (University research manager)

...The (electronic) publication, by an institution, of the research results generated by its staff and which resides in that institution's archives, rendering that information available to free access from the scholarly community (University research manager)

...ensuring that access is not limited to an elite group (Researcher)

...they tend to have a favourable policy towards researchers in resource-constrained countries (Researcher)

...the cost of publishing is considered as part of the research, but access is free (Researcher)

A model based on retention of copyright by the author...(Researcher)

...BUT, some early release of data may infringe the usefulness of the data to the contractor and thus take away his/her advantage over opponents. (Research council)

Figure 1 Excerpts from Responding groups' accounts of what they understand about OA

The promise of open access

Before confronting the survey respondents with some of the more challenging ideas and issues associated with open access journals, it was considered vital to establish to what extent there is "buy-in" to the benefits of open access.

2. The survey was sent to the following departments: Dept of Science & Technology, Dept of Education, the National Research Foundation, the National Advisory Committee on Innovation, The Academy of Science of South Africa, Higher Education South Africa, the Council for Scientific & Industrial Research, the Human Sciences Research Council, the Medical Research Council, Council for Geoscience, Agricultural Research Council, the SA Astronomical Observatory and the Africa Institute.

Respondents were presented with a series of 7 statements, to which they could indicate the extent of their agreement or disagreement (*A/S = Agree Strongly; A = Agree; N/S = Not Sure; D = Disagree; D/S = Disagree Strongly*). The responses of the separate stakeholder groups have been aggregated into one general voice.

While the respondents strongly support the idea that open access improves access for developing countries' scholars, slightly fewer are certain that this necessarily leads to opportunities for improved networking, collaboration and scientific methods. A representative of one of the research councils commented, "*it is anticipated that open access publishing will motivate the individual researcher to publish more than he [sic] previously did*". This forecast is borne out by one of the researchers: "*I cannot stress highly enough how positive it is to be able to access information quickly*".

There is a sudden rise in the level of uncertainty regarding the question of whether open access necessarily ensures greater accountability for publicly funded research. There may be reluctance amongst the scholarly community to accept that it might be answerable to a wider sector than its own reference groups. Would they have more readily accepted that open access provides more *efficient* use of publicly funded research? High levels of agreement are restored for the suggestion that open access offers greater visibility. In their view, more readers could certainly lead to higher citation levels, a highly desirable outcome for these groups of stakeholders.

Issues of copyright regularly seem to present difficulties for academics. The highest level of uncertainty (41%) is recorded for the statement "Open access publishing will motivate the individual researcher to publish more than he previously did".

Only roughly half of the respondents feel confident in the peer review process of the open access journals they have encountered. The perception that these journals lack rigour appears to linger. Particularly where article charges are applied, there remains a suspicion that the publishers will accept articles in order to generate income. One research manager commented, *"open access has many virtues, but so far is not associated with excellence"*. Across each of the groups, there were repeated comments expressing concern about quality, reflecting the importance that branded journals holds for the academic community. *"Quality is the most important consideration. Access and savings are second to quality but also very important"* (Organisation).

The Author group had been separately asked to rank the factors that were important when choosing where to submit their articles. Speed of publication had not rated highly (7th out of 10 factors). Yet this is a property that they associate with open access journals – perhaps believing that the peer review is brief and skimpy? The criterion that ranked the highest was the impact factor of the journal. These are the titles that will promote their standing amongst their peers and provide evidence of the value of their work to review committees. The culture of the high impact journal is fully embedded within their practices. It is worth noting that the previous enthusiasm the group indicated for the visibility and impact potential of open access has markedly deflated under closer questioning. Notionally they agree about the benefits of open access, but once they begin comparing open access journals with the journals they know and value, their uncertainty grows.

One of the policy-making organizations that responded to the survey remarked, *"It is about time the so-called high impact journal died, it is so detrimental to the majority of scientists/researchers in preferential publication and research area"*. In other words, the high impact journal is seen to be the last word of authority, but this has become restrictive to both the scientists and to the research field. From the open access point of view, the high impact journal also carries an inflated price that restricts access to the high quality work published within it. This is borne out by the lowest rating (10th out of 10) given to the price of a journal by the researchers as a consideration for their publication choice. The cost of a journal for prospective readers is of relatively low importance within their quest for peer recognition. This is ironic since open access will provide the widest possible readership for their work.

The groups' uncertainty regarding the accreditation status of open access journals is certainly a factor of the newness of many of these publications. Defining their status would place an important seal upon their recognition (where warranted) and so increase their uptake as publications of choice. As a researcher commented, *"quality and standards reflect the credibility of individual journals, rather than whether the research is open access or not"*. In other words the journals will stand or fall based upon their own merits.

Figure 2 details the groups' overall perceptions of the quality of open access articles.

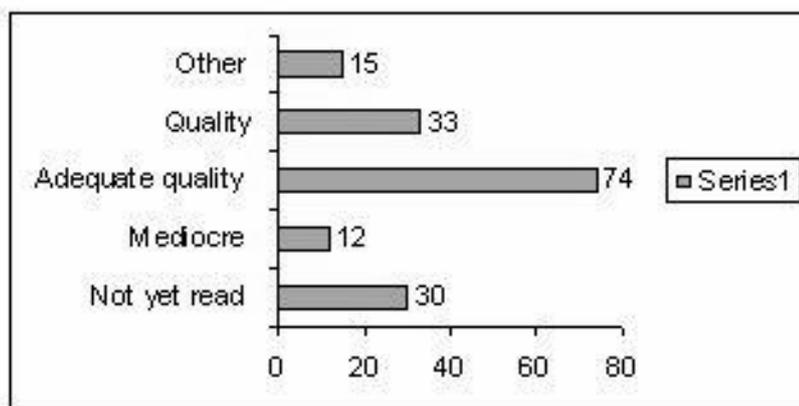


Figure 2 Perceived levels of quality of open access articles

The issue of article charges/author fees

Faculty are simultaneously readers and authors. As authors, they require the services of a publisher to administer peer review of their work and to disseminate their articles. In this way, authors are the main beneficiaries of a service. Furthermore, following publication, authors enjoy enhanced stature amongst their peers.

Article processing fees are based on the premise that authors and their host institutions are the most direct beneficiaries of publication in scholarly journals. ...Article processing charges thus distribute a journal's

publishing costs across those individuals and institutions that benefit most directly from a paper's publication (Open Society Institute 2004:17)

Biomed Central, an open access journal publisher that uses the author pays business model, has commented:

The present system, in which smaller universities effectively subsidise the cost of publishing the research carried out at relatively wealthy research centers, is far more inequitable and unsustainable (BioMed Central 2004).

The questionnaire provided the respondents with information regarding the author pays model and explained that it appeared that 'net reader' institutions would appear to gain while research-intensive institutions would shoulder the cost of making their publications free for everyone else. Again, respondents were faced with a series of statements to which they might agree or disagree.

Table 3 Respondents' views on article charges (N = 163)

Responses to Article Charges	A/S	A	N/S	D	D/S
Author charges are an appropriate cost-recovery system	9.20	42.95	23.94	20.85	3.06
An equitable way of redistributing resources within the research system	4.29	41.11	34.36	16.56	3.68
Author charges appear to present a disincentive to publish	7.36	30.07	32.51	28.84	1.22
Local journals would not survive using this business model	6.17	38.89	41.36	9.88	3.70
Overall systemic savings and improved access are the most important considerations	9.31	37.89	37.27	13.67	1.86

Besides any inherent agreement with the logic of the author pays system, it should be borne in mind that the respondents may be acquiescent of this model for two further reasons. Firstly, since the respondents are working within a developing country context, and therefore mostly exempted from article fees, they may not be troubled by the prospect of paying \$1500-\$2500 per article. Secondly, since South Africa is certainly a 'net reader' nation (producing only 0.2% of published articles), they may understand the scale of benefit to the country overall. Nevertheless, the group is able to hypothesise that article charges might constitute a disincentive to publish.

While international open access journals might be in a position to waive the article fees for developing country authors, local journals would not. The groups were able to foresee the difficult situation that local non-profit journal publishers might face under open access. Although they were given the opportunity to make comments about this, none did.

Overall, it was surprising to find that the notion of 'paying to publish' was not seen as an insurmountable problem for these groups. It may be that they understand how much it costs to produce research and that the imposition of article charges is a relatively low barrier for the larger prize of universally accessible dissemination of this cost-intensive activity. They were also asked to identify agencies that should bear the cost of article charges. Although one researcher commented, "*this is a minor issue*", most opted for some combination of research funder, author's institution, government department, or funds freed from the demise or cancellation of journals charging traditional subscription or licence fees.

Academic rewards

As mentioned above, it is certain that authors are likely to be highly selective when submitting manuscripts to a journal. Beyond the statements affirming belief in the advantages of open access, the groups' cautious approach to the quality of open access journals, or their responses to article charges, specific concerns that the author group might hold with regard to the academic reward system were also tested. Did they believe that publishing in an open access journal might jeopardise their future career opportunities? Would they wish to see greater endorsement of the open access philosophy by research managers and organisations such as the National Research Foundation and the Dept of Education? What strategies might be employed to bring this about? Alternatively, were they anxious about the threat that open access might appear to present to existing subscription journals? The following question was borrowed from Swan & Brown (2004).

Table 4 Researchers' views on the consequences of their choice to publish in open access. Journals (N = 145)

Publishing in an open access journal (N=145)	Agree	Disagree	Not sure
May adversely affect my chances of appointment/promotion	26.39	39.58	34.03
May adversely affect the careers of my co-authors	20.83	38.89	40.28
May adversely affect the potential impact of my published work	31.72	37.24	31.04
May adversely affect the economic viability of scholarly society journals	36.11	21.53	42.36

While they express more confidence than reservation in each of the first three statements, the high level of uncertainty across the board is indicative that these questions remain largely untested in reality. Of the 145 researchers, only 32 (22%) had already published in open access journals, a furt

Current and future prospects for open access within SA research institutions

While it is the actions of researchers that will influence the sway towards widespread uptake of open access, this can be hastened or impeded by the official stance of those in positions of authority. Table 5 presents the current situation within the respondents' institutions (individuals could respond to as many options as were applicable to them):

Table 5 The current status of responding institutions' policies on open access

Current status of open access policies	Managers	Organisations
OA publishing has not yet been discussed at business meetings	6 of 11	6 of 7
OA publishing has been raised, but not yet taken forward	4 of 11	0 of 7
Is developing a policy on OA publishing with regard to the research it funds	1 of 11	0 of 7
Is developing a policy with regard to recognizing OA publications as part of its academic review or grants making processes	1 of 11	0 of 7
The university is developing an OA archive that will collect and preserve its digital research outputs / The organization is developing an OA policy with regard to its own output	6 of 11	1 of 7

It is not clear how progress could have been made with respect to the last option without explicit approval via the first option. It is possible that institutional archives are being established as part of an overall preservation strategy or as a showcase of the institution's research activities, independently of any official stance on open access. From these responses it seems clear that the premier research organisations are lagging in placing open access on their agenda.

Notwithstanding the present status, respondents within the Manager and Organisation groups were asked to rate the chances of several strategic interventions being supported within their institutions, see Table 6.

Table 6 Prospects for endorsement of open access at policy level

Likelihood of progress	Already supports	Likely to support	Need more info
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Groups were given the opportunity to respond "would not support", but this option was not used by anyone. This is encouraging for envisaging a scenario where strong, supportive policies have been put into place, allowing open access to take root. For this to occur, further lobbying and advocacy initiatives would need to be pursued, especially given the high levels of "more information needed" responses.

Answering the research question

The purpose of the survey was to obtain empirical data to inform the research question which attempted to determine the prospects for open access publishing amongst the academic community in South Africa. The limitations of the survey (for example, the low response rate for the author target group which represents only one research field) will constrain the extent to which one may generalize for the broader population of researchers in all fields

Nevertheless, the findings above could conceivably be used as a gauge for wider responses and might be said to provide a pleasingly open yet cautious approach to open access publication. Nevertheless, it will be shown that the chances of a general swing towards open access remain highly unlikely at present.

Using the responses from the survey together with the author's knowledge and working experience with academics across several disciplines, it was possible to approach the research question by examining six necessary pre-conditions for widespread adoption of open access journals as publication channels. Extended discussion of each of these aspects is provided by Moller (2006:129-137). The following observations form an abbreviated summary:

1 Dissatisfaction with the current problems in scholarly publishing

- At present, 90% of SA scholarly publications emanate from 6 or 7 historically advantaged institutions where access to literature is not a severe problem. Since it is *publishing authors* that will make the decisive difference with regard to publishing in open access journals, these will not be experiencing high levels of dissatisfaction with the existing publishing model.

- The researchers in the survey indicated that the cost of a journal had the least influence in their decision about where to publish. It is reasonably certain that others' access to their published articles is not considered important, even though this may affect the overall visibility or impact of their work.
- 2 An informed understanding of the principles and benefits of open access
 - Stakeholders must first be aware of the principles and promise of open access in order to subscribe to these actively through their publishing behaviour. International studies (Rowlands, Nicholas & Huntingdon 2004; Seitmann 2005) have established that over 75% of academics know nothing or very little about open access. While the present survey found that overall 60,36% of the combined groups were reasonably knowledgeable about open access, it is likely that South African scholars across the disciplines conform to the findings of these international studies. Active advocacy will be required to spread information and awareness about open access.
 - The high levels of agreement on the advantages that open access would secure (with occasional mild levels of uncertainty) signals that the research community understands what could be achieved through widespread application of open access. It is not doubted that all scholars would want to see an improvement in their access to published articles.
 - 3 An active interest in furthering the development of open access
 - Whether this appreciation of the benefits would be translated into active choice for open access is a different matter. A recent survey of 780 UK academics across all disciplines found that, even where these were aware of open access, only 8% of the researchers in the physical and life sciences and 6% in social sciences and humanities currently "prefer to publish in open access journals" (Sparks 2005). This shows that knowledge of open access does not equate to changes in behaviour.
 - Thirty-nine percent of the respondents in the present survey were prepared to accord open access journals equal status with traditional journals, 25% were not, while the remainder were unsure. The reluctance to commit to open access journals probably rests upon the unproven status of these publishing channels.
 - Researchers have little incentive to pursue publishing in open access journals as their importance has not yet been signaled via debate within the local research system.
 - 4 The availability of a comprehensive spread of open access journals in which to publish
 - In order to be selected as publication channels, open access journals must have sufficient presence within the landscape of available journals. The Directory of Open Access Journals currently reflects 1,784 peer reviewed titles. *Ulrichs* lists 1,116 open access journals amongst a total of 23,995 refereed scholarly journals.
 - Hedlund, Gustafson & Bjork (2004:209) remark that marketing of open access journals has largely been neglected.
 - Since South African researchers in most fields find it easier to be published within local journals, a key consideration is how many of these are open access. Only 5 open access journals produced in South Africa have been identified (De Beer 2005:200-4; Moller 2006:135-6).
 - 5 The recognition of open access journals by review committees
 - Only approved journals are subsidised by the Dept of Education (Ministry of Education 2003: 5). These are titles listed in the ISI Citation Indices, the International Bibliography of Social Sciences and the Department's own list of approved South African journals. Only 210 open access journals are included in ISI citation databases and only 2 of the 5 identified South African open access journals are currently included in the Department's list.
 - Seventy-nine percent of researchers expressed a desire for greater recognition of open access journals where these met the requisite criteria. The requirements for proposing the inclusion of a South African journal in the accredited list are not onerous, but would require existing local journals to adopt an author pays model. It takes several years for new journals to achieve official impact factors through ISI and this depends upon them receiving high quality submissions.
 - 6 The ability to pay article charges
 - To the survey respondents, the idea of article charges did not appear to constitute an insurmountable obstacle to publishing in open access journals. Many local journals already levy page fees.

Guided by these observations, it is possible to forecast with some certainty that, *within the prevailing framework*, there is little likelihood of South African researchers choosing to publish in open access journals. There are several obstacles, the most important being: lack of incentive to pursue open access as a course of action; the enduring perception that open access journals lack rigour; insufficient information about appropriate open access journals within a given field; and the relatively small number of accredited open access journals available. The combination of these factors presents an unpromising prospect for open access journals locally.

Routes for fostering the progress of open access

Fortunately, this discouraging outlook may be averted by means of several direct and indirect interventions. The indirect interventions will occur as a result of developments within the movement towards open access itself, as it gains further momentum. For example, many mainstream publishers have established 'author choice' options or are converting

existing journals to open access. These experiments will filter through to increase local researchers' consciousness of the drive towards open access. Additionally, with the growing number of open access articles discoverable through *Google*, (both self-archived and from open access journals themselves), researchers will increasingly become direct beneficiaries of open access. Through their use of the material they should recognize that open access does not inherently bring about a loss of quality. Academics serving on editorial boards of local journals may begin to push for these to experiment with variations on the existing subscription model. At policy level, virtually every month there are reports of open access being endorsed or mandated by research funders, research organizations themselves or government-led agencies. This advancing threshold is likely to become more pervasive until it reaches some 'tipping point', after which local research managers and policy makers can no longer not act in a decisive way. Similarly, it is possible that the success of local institutional repositories may send a signal to authorities that it is possible to harness technology to promote the visibility, accessibility and impact of local research.

While these developments arising out of indirect interventions are positive and desirable, and seem inevitable, they are insufficient to create a widespread swing within the South African research system. For this to occur several overt actions are necessary. The following section presents recommended courses of action.

Recommendations

Proactive direct interventions are preferable to the passive response implied by the indirect interventions above. In order to bring about the benefits of open access as soon as possible, the following courses of action are proposed.

Faculty librarians can act as change agents by informing and advocating for open access within the departments they serve. A promotional brochure of the open access movement, *Create Change*, urges scholars and librarians to actively pursue and promote open access channels within their institutions and lists

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