

Open Access, Equity and Strong Economy in Developing and Transition Countries: Policy Perspective

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Abstract:

Since January 2007 Ukraine has a law mandating open access to publicly funded research. Most of the Parliament members supported it. And it is already the second parliamentary inquiry mandating the Cabinet of Ministers to take actions on creating favourable conditions for developing open access repositories in archives, libraries, museums, scientific and research institutions with open access condition to publicly funded research. Nevertheless bottom-up approaches of Ukrainian Universities and research centres as well as political support from the principle legislative body in the country have still not resulted into a network of well-functioning institutional repositories. The article highlights recent open access developments and presents the lists of open access benefits for the countries and regions.

Strong Growth, Rapid Changes

In 2007 we see steady progress in open access developments. Taking November 2007 as an example we can list a number of different initiatives all over the globe proving that open access is working. eIFL.net – a not for profit organization that supports and advocates for the wide availability of electronic resources by library users in transitional and developing countries and currently includes library consortia in 50 developing and transition countries in Central, Eastern and South-East Europe, the former Soviet Union, Africa, the Middle-East and South-East Asia – has released a federated repository with almost 100 open access institutional repositories (<http://eifl.cq2.org>). It is moving now towards linking up with the EU-funded DRIVER project – the Digital Repository Infrastructure Vision for European Research (<http://www.driver-repository.eu/>).

The Council of the European Union in the Council Conclusions on scientific information in the digital age: access, dissemination and preservation – recognized “that over the past years scientific libraries' capacity to provide researchers with access to a wide range of publications has been affected by rising overall prices of scientific journals (including electronic distribution of publications)”; and that it’s “the strategic importance for Europe’s scientific development of current initiatives to develop sustainable models for open access to scientific information” [1]. It is not as strong proof as the recent reports calling on the Commission to improve access to results stemming from the research it funds, including reports of the European Research Advisory Board [2] and the statement of the European Research Council's Scientific Council supporting open access to Community funded research results [3], but still it invites the member states to “reinforce national strategies and structures for access to and preservation and dissemination of scientific information, tackling organizational, legal, technical and financial issues” and invites the Commission to “monitor good practices in relation to open access to European scientific production, including those arising from large scale experiments by scientific communities and large research institutions, and encourage the development of new models that could improve access to European scientific research results” [4]. Half a year earlier preparing to the European Commission conference "Scientific information in the digital age: access, dissemination and preservation” a number of University associations, Universities and research organizations, research funders, National academies and European Research Associations signed the Petition

for guaranteed public access to publicly-funded research results [5]. In November 2007 this petition had 26,906 signatories from all over the world.

Heather Morrison in the Dramatic Growth of Open Access Series looking back at the 3rd quarter of 2007 reported: "Open Access continues to show amazingly strong growth, in every measure tracked" [6].

Chairman of the Indian National Knowledge Commission (NKC) in his recent letter to the Prime Minister recommended the NKC that all research articles published by Indian authors who receive financial assistance from the government should be in open access [7]. Almost at the same time Botswana Minister of Education gave a keynote address at the 'Open Access' leadership summit of the Southern African Regional Universities Association (SARUA) at the University of Botswana [8]. And the Cape Town Open Education Declaration: Unlocking the promise of open educational resources was softly launched [9].

All these initiatives prove that open access is a working model of scholarly communication for librarians, academic community, educators and research funders.

Why don't we have it yet? – Globally

The US-based Alliance for Taxpayer Access (ATA) – a diverse and growing alliance of organizations representing taxpayers, patients, physicians, researchers, and institutions that support open public access to taxpayer-funded research (<http://www.taxpayeraccess.org/>) provided a quotation from Earlier Sharon Terry, President of the Genetic Alliance: “My children have a genetic disease. It is rare, not well understood, and there is no treatment or cure. However, the most disturbing obstacle we face is the wall around published scientific research. Information critical to health and biomedical research is held hostage.... [But fortunately] new notions of cooperation, collaboration, transparency, and access are now challenging the status quo. It is now time to unlock this science and make it more accessible to all of us.”

ATA summarized open access developments in the following list of benefits:

1. Expanded access to research increases its impact and better informs subsequent research.
2. Broader access to knowledge fuels accelerated use and innovation.
3. Expanded innovation resulting from enhanced access will improve health care outcomes.
4. More innovation will stimulate the U.S. life sciences economy. [10]

5. Public access is an opportunity for publishing and other industries.
6. Public access will ensure all stakeholders have access to the research they need.
7. Taxpayer equity.

A growing body of evidence demonstrates that when scientific research is accessed more frequently it is cited more often in subsequent research, a common measure of research impact [11].

As ATA already presented, open access and cooperative sharing played a key role in the sequencing of the SARS virus in just seven days, expediting the development of diagnostic tests to identify the virus.

Researchers found that unprecedented cooperation and speedy scientific advancement allowed them to quickly control outbreaks [12].

Harold Varmus, Nobel laureate, former director of the US National Institutes of Health, and co-founder of open access publisher Public Library of Science gave another example: “The precepts of the publicly funded genome project made a very big impression, and it does have an impact on people's approach to scientific information, and their attitudes about access to it...It shows how important it is not just to have pieces of sequence floating around and the literature somewhere else, but to have them actually amalgamated into one site where you can do a search and get the information you want. That is a metaphor that we are trying to develop with the scientific literature. I am certainly a strong proponent of the kinds of things that Larry Lessig talks about with Creative Commons: the reuse of information, the creation of new ideas by having access to previously published work, the right to reformulate information in ways that will allow us to have new insights — all of us who contribute to discovery want to see this” [13].

And finally according to a 2006 Harris Interactive survey, 82% of American adults believe that “if tax dollars pay for scientific research, people should have free access to the results of the research on the Internet” [14].

John Houghton, Colin Steele and Peter Sheehan in their report to the Department of Education, Science and Training “Research Communication Costs in Australia: Emerging Opportunities and Benefits” mentioned the most important potential benefit of open access – an enhanced access to, and greater use of, research findings, which would, in turn, increase the efficiency of R&D as it builds upon previous research. Another

significant potential – to expand the use and application of research findings to a much wider range of users, well beyond the core research institutions that have had access to the subscription-based literature.

Estimating the benefits of a one-off increase in accessibility and efficiency they found that:

- With public sector R&D expenditure at AUD 5,912 million in 2002-03 and a 25% rate of social return to R&D, a 5% increase in accessibility and efficiency would be worth AUD 150 million a year;
- With higher education R&D expenditure at AUD 3,430 million and a 25% rate of social return to R&D, a 5% increase in accessibility and efficiency would be worth AUD 88 million a year; and
- With ARC administered competitive grants funding at AUD 480 million and a 25% rate of social return to R&D, a 5% increase in accessibility and efficiency would be worth AUD 12 million a year [15].

John Houghton, Colin Steele and Peter Sheehan refer to Getz and his three important dimensions of benefit: broader industry, government and society impacts; educational impacts; and the potential for greater integration of publications and other the digital objects that are increasingly the outputs of research (*e.g.* numeric data sets, software algorithms, animations, sound and video files) [16]. And to the ‘dis-benefits’ of the subscription publishing system by Kircz which was not the full record of science because of timing (*«the full stop after the fact»*), with current discussion in many fields already based on pre-prints and other communications mechanisms like discussion lists, web logs, etc.), selectivity in publishing (*«only a trophy cabinet»* with little reporting in the formal journal literature of failed experiments or trial and error tests) [17]. And they create the list of benefits:

- Speed of access speeding up the research and discovery process, increasing returns to investment in R&D and, potentially, reducing the time/cost involved for a given outcome, and increasing the rate of accumulation of the stock of knowledge;
- Improved access leading to less duplicative research, saving duplicative R&D expenditure and improving the efficiency of R&D;
- Faster access leading to better informed research, reducing the pursuit of blind alleys, saving R&D expenditure and improving the efficiency of R&D;
- Wider access providing enhanced opportunities for multi-disciplinary research, inter-institutional and inter-sectoral collaborations;

- Wider access enabling researchers to study their context more broadly, potentially leading to increased opportunities for, and rates of, application/commercialization; and
- Improved access leading to improved education outcomes, enabling a given education spend to produce a higher level of educational attainment (at least at the post secondary level), leading to an improvement in the quality of the ‘stock’ of researchers and research users [18].

How it works: Developing National Open Access Policies – Ukrainian Case Study

Since January 2007 Ukraine has a law mandating open access to publicly funded research. Most of the Parliament members supported it. And it is already the second parliamentary inquiry mandating the Cabinet of Ministers to take actions on creating favorable conditions for developing open access repositories in archives, libraries, museums, scientific and research institutions with open access condition to publicly funded research. Nevertheless there is no implementation of this law. Bottom-up approach of Ukrainian Universities and libraries as well as up-down political support from the principle legislative body in the country have still not resulted into a full scale functioning network of institutional repositories.

Mandating open access to publicly funded research in Ukraine was a movement launched by the scholars publishing their articles in open access journals, innovative librarians and University administrations.

International Renaissance Foundation (IRF, Soros Foundation in Ukraine) coordinated this movement. Since 2004 IRF organized a number of awareness raising campaigns in mass media and more than a dozen regional seminars for the academic community. National Academy of Sciences (NAS) and International Researches and Exchanges Board (IREX) supported open access ideas and joined the movement. IRF implements open access projects in cooperation with the Information Program of the Open Society Institute and the Electronic Information for Libraries Consortia (eIFL.net).

The first public statement on open access policies in Ukraine resulted from the international workshop “Open Access Scholarly Communication” hosted by the National University Kyiv-Mohyla Academy (NAUKMA) and organized by IRF, Open Society Institute, NAS and International Association of Academies of Sciences on February 17-19, 2005. 140 researchers, administrators, librarians, information managers from higher educational institutions and scientific research laboratories involved in e-journal

publishing and institutional repository development from 17 countries signed the Recommendations for Ukrainian authorities to ensure: the right to access information and knowledge and to guarantee that intellectual property regimes are not the obstacles to the public access to knowledge, to encourage research and higher educational institutions to practice open access and to put an open access condition to publicly funded research (except reasonable exceptions) and to provide state financing and technical assistance to research and higher educational institutions setting up open access repositories.

Ukrainian Vice Prime Minister endorsed these Recommendations. And on September 21, 2005, the Recommendations were presented at the first Parliamentary hearings on Developing information society in Ukraine. In December 2005 these hearings resulted into the Parliamentary Inquiry on Harmonization of Governmental Educational Policies re open access movement [19]. Open access was one of the priorities in developing information society in Ukraine. The Cabinet of Ministers was responsible for creating favorable conditions for developing open access repositories in archives, libraries, museums and other cultural institutions and the Ministry of Education and Science of Ukraine – for encouraging development of open access resources in science, technology and education with open access condition to publicly funded research.

In the beginning of 2007 this parliamentary resolution was transformed into the law mandating open access to publicly funded research [20]. And six months were given as the transition period (should have been completed by July 2007). But the following political crises withdrew the attention of the Cabinet of Ministers from immediate implementation of this law.

Nevertheless since October 2005 the academic community undertook a bottom-up approach to create a network of open access repositories in Ukraine. Ten Ukrainian Universities – participants of the University Autonomy project – reported this decision at the national conference for university and regional universal scientific libraries INFORMATIO 2005.

Now there are seven pilot open access repositories in Ukraine. Two of them are in the institutions of the National Academy of Sciences – in the Institute of Software Systems (<http://eprints.isoftware.kiev.ua>) and in the Institute of Biology of the Southern Seas (<http://repository.ibss.org.ua/dspace/>). Others were created in the Universities: in Zhytomyr National University (<http://eprints.zu.edu.ua/>), in Ukrainian Catholic University

(<http://repository.ucu.edu.ua> and <http://dspace.ucu.edu.ua>) in the Center for the Humanities of Lviv National University (<http://www.humanities.org.ua> and <http://dspace.humanities.org.ua>), in the National University Kyiv Mohyla Academy (<http://www.library.ukma.kiev.ua/dspace/>) and in Kharkiv National Academy for Municipal Administration (<http://eprints.ksame.kharkov.ua>). IT departments, university libraries or academic communities run these repositories.

The most populated repository is the one run by the academic community – in the Center for the Humanities of Lviv National University. They outsource hosting and IT support from Ukrainian Catholic University and are concentrated on filling in the repository for those researchers who are not willing to do it themselves at the moment. As to the human resources, they have – 6 local staff and 2 freelancers. 4 students and department managers were trained and now are responsible for populating the repository. Populating the repository is also a part of compulsory museum-archival practice for the students from the philological department of Lviv National University. The repository team is also working with learning societies in the humanities area to provide them with a platform for disseminating and archiving their research results. Having spent less than 10,000 USD the Center for the Humanities documented ten years of research activities. And they created a very helpful research and education resource in the environment with lack of proper distribution system for research papers. Authors from nine Ukrainian cities as well as from Australia, Austria, Canada, Czech Republic, Germany, Great Britain Poland, Russia, Slovak Republic, Sweden, the USA and other countries contribute to the repository. Among future plans – students' theses and dissertations will become a part of the repository and stronger cooperation with academic journals and University library is planned.

Managers of Ukrainian open access repositories projects specified the following problems and tried to suggest solutions to them:

Problem 1: Difficulties with server design and software installation, lack of some special fields in the software (e.g. in their DSpace version there is no field about curator of master theses, etc). Complexity of the system for an average Ukrainian researcher without advanced IT skills. The final goal is self-archiving so there is a need to train the researchers to archive themselves.

Suggested solution 1: To develop detailed instructions specifying the every steps in software installation and to create an installation pack – Institutional repository in the box. And to write clear instructions for the users (self-archivers).

Problem 2. Lack of understanding among professional community how authors' rights in the digital environment differ from the print world. What does it mean to deposit an electronic copy? Why do deposit licenses replace usual copyright transfer agreements?

Suggested solution 2: To develop a standard non-exclusive license for depositing an article in open access institutional repository and to train the librarians and department staff basics of copyright in the digital age. The first seminar is planned for December 2007.

Problem 3: Lack of qualitative indicators of informatization of the universities. For majority of the scholars computers are still mainly typing machines and tools of reading-writing e-mails. And a lack of technical capacities in the universities.

Suggested solution 3: To conduct cost-benefits analysis of an open access institutional repository in the University. To prepare FAQs and a set of explanatory documents for university administrators: What is an open access institutional repository? Why does University need it? How can a library create an open access institutional repository in the University (policies, procedures, action plans, etc.)? How can a University department create an open access institutional repository? What is the model self-archiving policy in the university or research institution? The repository teams prepare these documents or translate the existing once from other languages (like the model self-archiving policy).

Problem 4: Lack of exchange between experts from different institutions developing open access institutional repositories in different cities located far from each other.

Suggested solution 4: A wiki (www.repository.org.ua) has just been set up to share the useful documents and links. And of course mailing lists and seminars still serve as the meeting points.

Problem 5: Lack of financing.

Suggested solution 5: Possibilities to apply together for grants.

In 2007 open access educational materials became another topic for discussions in Ukraine in cooperation with Connexions (cnx.org) – a non-profit publishing project that brings textbooks and other learning

materials into the Internet Age. Authors can create their "modules" of information in the global repository of open knowledge, as well as connect new and existing modules together into customized web courses, textbooks, and curricula. All content is open-licensed under the Creative Commons "attribution" license; all tools are free and open-source. Connexions welcomes translations to and from Ukrainian and other languages. Translation projects are already under way in English, Spanish, Portuguese, Japanese, Chinese, Vietnamese, and Thai; many of these materials are the most popular once in Connexions. And what was most excited for Ukrainian university publishers – Connexions welcomes academic and university publishers to exploit its free XML-based platform for producing and distributing academic works like textbooks, monographs, and research journals for free online and at very low cost in print via print-on-demand. Moreover Creative Commons "attribution" license enables publishers to develop new revenue-generating value-added services around their scholarly content.

There are 9 Ukrainian open access journals listed in DOAJ: Condensed Matter Physics published by the Institute for Condensed Matter Physics of NAS, Fizika Nizkih Temperatur and Journal of Mathematical Physics, Analysis, Geometry both published by B.Verkin Institute for Low Temperature Physics and Engineering of NAS, Journal of Physical Studies published by West Ukrainian Physical Society, Speleogenesis and Evolution of Karst Aquifers published by Commission on Karst Hydrogeology and Speleogenesis, Union International of Speleology, Symmetry, Integrability and Geometry: Methods and Applications published by Department of Applied Research, Institute of Mathematics of NAS, Ukraïns'kij himioterapevtičnij žurnal published by Institute of phthisiology and pulmonology, Academy of Medical Science, Ukrainian Journal of Physical Optics published by Institute of Physical Optics of NAS, and Ukrainica Bioorganica Acta published by Institute of Molecular Biology and Genetics of NAS. But keeping in mind a total of a couple of hundreds Ukrainian academic journals, the percent is still very low.

Governmental institutions are still the unique donors of research and development in Ukraine. This is why a law mandating open access to publicly funded research plays a crucial role in open access initiatives. Delays with implementation of this law cause delays in the development of open access institutional repositories – low submission rate, lack of understanding, lack of financing. And Arthur Sale proved that by requirement to deposit research output into a repository coupled with effective author support there are high levels of

content in Australia. And it is not like this with voluntary deposit policies, regardless of any author support by the university [21]. This is consistent with international data (major international study by Swan & Brown (2005) [22]. With this evidence, it is well overdue for the Australian Department of Education, Science & Training to rule that postprints of all research that Australian universities report to it must be deposited in an institutional repository. And as it was described above the costs are very small and the benefits are huge. There are promising results of mandatory policies: University of Southampton School of Electronics & Computer Science (mandatory policy since 2003) has 90+% compliance already, CERN (as well from 2003) – 90% compliance already and Queensland University of Technology (since 2004) – 40% + compliance and growing. And 92% of academic journals already permit self-archiving.

How far are we? Open access in developing and transition countries

As Leslie Chan reported, open access provides improved visibility, an increase in submissions – from a wider range of countries – improved circulation, and worldwide reach [23]. Eve Gray described a case study from the Indian Journal of Postgraduate Medicine published by Medknow Publishers, which moved from being a locally produced print journal in India to an Open Access journal distributed by Bioline International:

- It now gets 1 million hits a year and the total number of submissions increased from 190 in 2000 to over 800 in 2006.
- The number of submissions from authors outside India rose from less than 10 percent in 2001 to 38 percent (166) in 2003 and 30 percent (189) in 2004. The journal is now being seen as an international journal capable of reaching a global readership and is attracting a different – and wider – kind of authorship [24] and [25].

DK Sahu, the Director of Medknow Publishers, speaking at the Bangalore Workshop on Electronic Publishing and Open Access in 2006, reported a similar increase across the range of Medknow journals moved to open access, with a common pattern of improvements in the international profile of authors, higher hit rates – indicating wider readership – and increased impact factors [26]. Editorial board of Ukrainica

Bioorganica Acta – open access journal published since 2004 – reported increase of their authors participating in international collaboration projects since the launch of the open access journal.

There are examples of successful national and regional collaboration on building thematic journal collections to increase the impact of scholarly output. National example comes from the portal of open access journals in Croatia (Hrcak, <http://hrcak.srce.hr>) with 70 % of all science and technical journals published in Croatia.

Open access declarations for the developing countries encourage regional cooperation: Salvador Declaration on Open Access – a Developing World Perspective drafted in 2005 in Bahia, Brazil [27], and A National Open Access Policy for Developing Countries drafted in 2006 at the Workshop on Electronic Publishing and Open Access held in Bangalore, India [28]. One of the most successful regional examples is SciELO consortium (Scientific Electronic Library Online www.scielo.org and <http://www2.scielo.org>) that just celebrated 10 years. In July 2007, the SciELO Network operated ten certified collections of online journals and there were six under development. The national certified collections were from eight countries: Argentina, Brazil, Chile, Colombia, Cuba, Portugal, Spain and Venezuela. There were over 450 titles of certified journals and more than 130 thousand online full-text articles, including original scientific articles, review articles, editorials and other types of communication. The collections SciELO Brazil and Chile in the first semester of 2007 had a monthly average of 8.8 and 2.1 million visits, respectively. In the Brazilian collection, the visits represented over 7.5 million downloads of articles and other texts. Most SciELO Brazil journals that are also indexed at the ISI JCR had a dramatic increase in number of citations received as well as in the impact factor. Simultaneously, in the last five years, three journals from the SciELO Chile collection and 10 of the SciELO Brazil collection have been indexed at the ISI Web of Sciences [29]. SciELO is a good model for cooperative electronic publishing in developing countries and provides an efficient way to assure universal visibility and accessibility to their scientific literature, contributing to overcome the phenomena known as 'lost science'. In addition, the SciELO model comprises integrated procedures for the measurement of usage and impact of scientific journals. SciELO Model is product of a partnership among FAPESP (<http://www.fapesp.br>) – the State of São Paulo Science Foundation, BIREME (<http://www.bireme.br>) – the Latin America and Caribbean Center on Health Sciences Information, as well

as other national and international institutions. A pilot project with ten Brazilian journals from different subject areas was successfully implemented in 1997-1998 aimed at the development and evaluation of an adequate methodology for electronic publishing on the Internet. From June 1998 the full scale project was launched incorporating new journals and expanding its operation to other countries. Since 2002 CNPq (<http://www.cnpq.br>) - Conselho Nacional de Desenvolvimento Científico e Tecnológico supported the project. The successful development of the SciELO network of Latin America and Caribbean scientific journals made locally generated scientific information widely available increasing its usage among scholars and policy makers. Both Hrcak and SciELO proved that governmental financing to the journal portals results into higher impact of science from transition and developing countries [30].

Barbara Kirsop, Subbiah Arunachalam and Leslie Chan suggested another possibility that have not been widely explored yet – more active international donors involvement in open access projects in developing countries. In addition to regional efforts, more global and coordinated approaches to open access need to take place and agencies such as the World Health Organization (WHO), UN Development Programme and UN Educational Scientific and Cultural Organization are in a position to take a leadership role [31], [32] and [33].

Manon Röss described the process of negotiations with one of the donors. In November 2007 one of the outcomes of the second session of the Intergovernmental Working Group on Public Health, Innovation and Intellectual Property (IGWG2) of WHO was a statement on open access to government funded research. Open access issue was not in the original July Secretariat draft Global Strategy document. It appeared for the first time in the so called “Rio Text,” that came out of two meetings (one in Bolivia in August and one in Brazil in September 2007) with Argentina, Brazil, Bolivia, Chile, Costa Rica, Cuba, Ecuador, El Salvador, Honduras, Mexico, Peru, Suriname, Uruguay and Venezuela. The Rio text called to: promote public access to the results of government funded research, through requirements that all investigators funded by governments submit to an open access database an electronic version of their final, peer-reviewed manuscripts; support the creation of open databases and compound libraries. However in the final version there is an open access provision, apparently accepted by consensus at the meeting, but the “requirements” language has been replaced with a watered down “strong encouragement”: promote public access to the

results of government funded research, by strongly encouraging that all investigators funded by governments submit to an open access database and electronic version of their final, peer-reviewed manuscripts; support the creation of open databases and compound libraries [34] and [35].

Allison Fullard conducted a survey of South African responses to open access publishing, which showed that the research community already welcomed open access [36]: respondents were presented with seven 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*).

Table 1 Respondents' views on outcomes of Open Access (N=163)

93,21% of respondents agreed, that open access boosts developing countries' access to scholarly literature; 87,04% - that open access promotes developing countries' engagement with global science; 91,97 – that open access promotes the advance of scientific knowledge; 57,4% - that open access provides more accountable use of publicly funded research; 70,36% - that open access articles will be read by more people, and probably cited more often; 51,85% - that authors retain copyright and are free to use it as they wish and 65,43% - that with open access development the serials crisis facing libraries will be broken.

International academic and library community ready to be engaged in open access projects.

Recommendations for countries deciding on their open access policies:

- Policies mandating open access to publicly funded research enhance access to, and greater use of research findings, increase the efficiency of R&D, accelerate use and innovation, stimulate economy.
- Alliances are crucial and local and regional partners needed.
- Targeted web-sites and workshops proved to be useful tools for awareness raising and lobbying. Good media coverage of open access projects is important to create public awareness.

Notes:

[1] Council Conclusions on scientific information in the digital age: access, dissemination and preservation. 2832nd COMPETITIVENESS (Internal market, Industry and Research) Council meeting Brussels, 22 and 23 November 2007. http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/intm/97236.pdf (accessed December 5, 2007).

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Table 1 Respondents' views on outcomes of Open Access (N=163) [36]

| Benefits of Open access | A/S | A | N/S | D | D/S |
|--|------------|----------|------------|----------|------------|
| OA boosts developing countries' access to scholarly literature | 62.35 | 30.86 | 5.55 | 1.24 | 0 |
| OA promotes developing countries' engagement with global science | 54.32 | 32.72 | 10.49 | 1.86 | 0.61 |
| OA promotes the advance of scientific knowledge | 56.17 | 35.80 | 7.42 | 0.61 | 0 |
| OA provides more accountable use of publicly funded research | 33.95 | 23.45 | 36.42 | 5.56 | 0.61 |
| OA articles will be read by more people, and probably cited more often | 37.65 | 32.71 | 22.83 | 6.79 | 0 |
| Authors retain copyright and are free to use it as they wish | 24.08 | 27.77 | 40.75 | 6.18 | 0.61 |
| The serials crisis facing libraries will be broken | 24.08 | 41.35 | 30.24 | 4.33 | 0 |