



Forum: GC5- Communication and Information

Issue: Promoting open access to scientific information and educational resources in the world information networks

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Introduction

Access to scientific information is of paramount importance to everyone in the world, ranging from scientists to students. Although open access has relatively been more successful in the Western hemisphere, the urgency of reaching open access in the developing world must not be ignored as it may contribute to solving a great number of issues. It is the first step to education, innovation, and development. At least 10 out of the 17 Sustainable Development Goals (SDGs) require the usage of science. By promoting open access to these types of resources, worldwide education and the SDGs become easier to achieve.

Definition of Key Terms

Open Access: Unrestricted online access to publications, with very few to no limits on use, such as copyright or license restrictions. With open access, research outputs ranging from academic journal articles and conference papers to theses and books are available to reach and use.

Article Processing Charge (APC): A fee paid by authors to publishers to make their work openly accessible in either an open access or a hybrid journal. Generally, this fee is paid by the individuals funding the author's research, or the author's institution instead of the author themselves.

Hybrid Journal: An subscription journal in which consists of articles of which only some are openly accessible. These types of journals usually require the payment of an APC.

Gold Open Access: After an author's work is published in either a hybrid or an open access journal, the final published version of the article is immediately free for anyone to reach. Typically requires the payment of an APC, but is less strict regarding licensing restrictions in order to increase, reuse, access, and dissemination to a maximum level.

Green Open Access: An author self-publishes their article in an online repository, archive, or website, with the publishing expenses paid by the readers and not the author. The pre-print, post-print, or final version of the author's work is free for anyone to find online, however in some cases an embargo period (a period where subscribers are unable to access a specific academic journal due to them not



paying for access) may apply. Licensing options are flexible, causing the author to have more control over their work.

Background Information

Pre-Internet

Despite the obvious lack of internet before the 1990s, various ways of spreading academic research were proposed. The modern open access movement started around the 1950s, when Letterist International made their journal available to the public. A while later, LI became Situationist International, which was “in principle, usable by everyone, even without acknowledgement, without the preoccupations of literary property.” as stated by Guy Debord, the founder of SI.

As the Digital Age began, the Internet started spreading all around the world. Being a system that is able to copy and freely enable the distribution of information, the issue of open access started rapidly becoming a subject of heated debate.

2000s

In 2001, 34,000 scholars signed “An Open Letter to Scientific Publishers”. Scientists in support of this letter were also against publishing articles in non-open access journals, which led to the formation of the Public Library of Science (PLOS), an advocacy organization and an open access publisher.

The term “open access” was first officially defined in the Budapest Open Access Initiative in 2002, as:

“There are many degrees and kinds of wider and easier access to this literature. By 'open access' to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.”

After this initiative, the Bethesda Statement on Open Access Publishing and the Berlin Declaration on Open Access to the Knowledge in the Sciences and Humanities added that for a piece of work to be openly accessible, readers must be able to "copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship."

Benefits of open access publishing

Open access provides great benefit to all researchers, especially ones in developing countries, where universities or libraries may not be able to afford various subscriptions to journals. Difficult accessibility to research ultimately results in the inability to integrate information gained from research to



school curricula, causing the developing country to lack in education. In addition to educational benefits, open access may also help an LEDC improve its internal policies on energy consumption, healthcare, economic planning, and many more issues, since access to scientific research all around the world would most possibly prompt further discoveries and help people take different opinions and data into consideration. With a powerful foundation in science, economies can grow and develop.

If we look from an author's point of view, although they generally pay an APC in the gold open access system, the author overall benefits from the open availability of their work since it provides them with visibility to the public. It increases the impact of local research, helping authors create networks, contacts, and research partnerships and eradicating professional isolation. Many funding agencies support open access as the potential discoverability and exposure of the authors they fund promises a larger return to their investment.

Timeline of Major Events

Bermuda Principles (1996)

In a summit in 1996 in Bermuda, a group of leaders in the scientific community established rules and guidelines for the quick and public release of DNA sequence data. These principles required that all the data be released in publicly accessible platforms within twenty-four hours after creation, conflicting with the traditional practice of making experimental data available solely after publication in the science field, and causing rapid pre-publication data dissemination to be the norm in genomics.

BioMed Central (2000)

BioMed Central, was arguably the first and largest open access science publisher to be founded. All BioMed journals are published online, with no subscription fees applying to any of the articles.

Open Letter to Scientific Publishers (2001)

As stated in the Background Information, the Open Letter to Scientific Publishers was a revolutionary step towards open access, as 34,000 scholars signed the letter and pledged against publishing their work in non-open access journals for the sake of scientific accessibility. This open letter also led to the formation of the Public Library of Science.

Budapest Open Access Initiative (2002), Bethesda Statement of Open Access Publishing (2003), Berlin Declaration on Open Access to Knowledge and Science in the Humanities (2003)

These three statements are public statements of principles regarding open access to scientific research. The initiatives are recognised as one of the most major events of the open access moment, containing the most widely used definitions of "open access", and further encouraging open access.



Major Countries and Organizations Involved

UNESCO

Since at least 10 out of the 17 Sustainable Development Goals (SDGs) require scientific input, UNESCO has built its open access initiatives around the SDGs, supporting the urgent removal of restrictions on academic research in order to increase the distribution of scientific knowledge around the globe.

United States of America

Open access is strongly supported in the US. As of May 2015, there have been 1053 open access journals indexed in the Directory of Open Access Journals and 469 open access repositories registered in the Directory of Open Access Repositories, identifying the USA as the largest open access publisher.

Russia

In Russia, open access is relatively not a preferred way of publication. As the early development of open access in the 1990s coincided with the economic turmoil and unsuccessful reforms in Russia, journal subscription costs increased, making the general public struggle in reaching scientific papers. In Russia, there are currently no large centralized repositories, and open access journals are scarce and unpopular among the nation's scientists.

India

India possesses a significant number of open access journals and open repositories, with more than half of Indian journals being open access and most of them not charging authors with APCs. The several hundred open access journals in India are supported by institutions such as laboratories, universities, and research organizations. Furthermore, the government of India is also in support of open access, as they recently approved an open access policy in order to increase the spreading of information.

European Commission

Open access has been one of the European Commission's core strategies in spreading knowledge and education throughout the globe. The EC encouraged all European Union Member States to put publicly funded research results into the public sphere in 2012. With the Horizon 2020, the EC has shifted from promoting open access to "open science" in order to address and include issues such as infrastructure, intellectual property rights, content-mining, and inter-institutional, inter-disciplinary, and international collaboration among people involved in research.

Previous Attempts to Solve the Issue

There have been various solutions proposed in order to increase worldwide open access. To start with, the combined definitions the Budapest Open Access Initiative, Bethesda Statement of Open Access Publishing, and Berlin Declaration on Open Access to Knowledge and Science in the Humanities supplied provided a stable foundation for further progress in spreading open access.



One solution was carried out by UNESCO, called The Global Open Access Portal (GOAP), funded by Norway, the United States of America, Colombia, and Denmark, designed to inform 158 countries on their status on open access, how, where and why open access has been beneficial, and teach about the open access environment in the world. By ranking countries according to their progress in open access, the portal highlights the success factors in high-ranking countries that have implemented open access, and the possible barriers and opportunities low-ranking countries will face.

In low-income countries, Health InterNetwork Access to Research Initiative (HINARI), sponsored by the World Health Organization, works towards promoting open access, but even this system has its restrictions. To give an example, individual researchers can only access a specific document if they register with their institution. However, many countries, such as South Africa, do not possess this kind of access.

LEDCs also receive help in terms of open access from organizations that work with international collaboration, such as SciELO (Scientific Electronic Library Online), an approach to open access journal publishing, through collaboration between Latin American countries. Bioline International, a non-profit organization aiming to help publishers in developing countries consists of people in the UK, Canada, and Brazil. Moreover, Research Papers in Economics (RePEc), has over 100 volunteers in 45 countries collaborating on promoting open access. The aforementioned organizations unfortunately have not been able to create a significant and widespread impact, most likely due to the lack of funding or volunteers.

Possible Solutions

A basic solution to promoting open access to scientific information and educational resources in the world information networks would be raising awareness on the topic through means of online ads, flyers, brochures, and public seminars or conferences organized by scientists. Summits with representatives from each United Nations Member State attending in order to inform and encourage countries to adopt pro-open access policies and legislations could also be organized. Furthermore, governments could be called upon to fund scientific research so that journals would not be in need of APCs or payments by researchers willing to access documents. In order to ensure the implementation of academic research to education, hybrid journals could still charge the public for access if in need, but could allow specific institutions and members of institutions such as universities free access. Moreover, the nonprofit organizations and initiatives mentioned in the previous could be funded and developed, creating a more stable and effective solution in low-income countries.

Useful Links For Further Research

The Public Library of Science website describing the benefits of open access:

<https://www.plos.org/open-access/>

A UNESCO page giving brief information on the issue:

<http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-access-to-scientific-information/>



MUNESCO

A video featured on the UNESCO page mentioned above, giving a simple explanation of open access:

<https://www.youtube.com/watch?v=L5rVH1KGBCY&t=321s>

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