



OPEN ACCESS ACADEMIC PUBLISHING: ACCESS TO SCIENCE

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ABSTRACT

With the advent of Internet technology, the modus operandi of scientific research and its subsequent publication has undergone dramatic change. Faster information sharing has resulted in greater access to academic research. However, the same has been taken over by big publication houses that charge hefty subscription fees thereby discouraging active academic research. Open access publishing seems to be a promising solution to the growing incidence of pay walls and high subscription rates. However, it has been found that the existing model of open access adopted by the majority of the publishers is flawed on multiple grounds. In this context, the paper is a humble attempt to:

- a) *Examine the existing model of open access publishing and issues therein;*
- b) *Suggest measures to improve academic publishing as a whole.*

PART I INTRODUCTION

The institution of academic research and publishing has undergone a tremendous change with the advancement of science and technology. While the pre-internet era was largely characterized with the physical submission of manuscripts through postal services, the readers too had to subscribe to the hard copies of the journals in order to gain

access to research materials. However, with the development of internet technology, the academic sector took a revolutionary turn. Now both the authors and the readers are able to share and access information through online platforms. This led to the dissemination of information at a pace never imaged before. Truly, information technology via internet came as one of the biggest boons in the history of mankind. People now were just a click away from sharing or accessing relevant scholarly research and information.

However, unprecedented rate of information sharing was not the end of the story. The technological revolution also saw a shift in the nature of academic publishing. Where initially most of the scholarly publishing was undertaken by academic societies or patron institutes devoid of or with minimal commercial interests, the same underwent a sea change with the introduction of internet technology.¹ As internet provided greater and easier access to information and resources, the same gave a fillip to academic research and its subsequent dissemination via online sharing mechanisms. The same was largely possible due to the low cost of knowledge distribution across the digital platform coupled with reduced restrictions on the quantity of such dissemination as against the traditional hard copy journals. This led to the transformation of academic research into an industry that was commercially controlled by big publication houses who sought to make huge profits from the sharing of academic works and research.

¹ Lakhotia, Subhash. (2017). The Fraud of Open Access Publishing. Proceedings of the Indian National Science Academy 90 10.16943/ptinsa/2017/48942



The large scale commercialization of academic research and publishing meant huge profits to publishing houses largely at the expense of public funds. This increased the cost of accessing scholarly works and as a result the cost of academic research started rising. This was specially felt in the case of scientific research as the same is largely built on the existing works. Thus, with the publishers charging high subscription rates for science journals, access of the same to people with limited resources was constrained thereby indirectly affecting subsequent future research. This had enormous ramifications for India as developing state with limited resources. The truth is that even today scientific research in India is heavily dependent on the availability of the foreign journals. This is evident from the fact that the Council for Scientific and Industrial Research (CSIR), the nodal body dealing with scientific research sought an annual budget allocation of Rupees Five Hundred Crores from the Government towards annual subscription of academic journals. CSIR alone is a subscriber to about eight thousand academic journals. It is worth noting here that some of the research journals charge an annual subscription fee of as much as Forty Thousand Dollars and the same amounts to an increase of about One Hundred and Forty Five percent in the past six years.²

Thus, the emergence of this new trend in academic publishing created a sort of paradox in the academic research sector. While the introduction of the internet technology was seen as a tool that would revolutionize academic research and its subsequent dissemination by increasing

² Jacob P. Koshy, *Rising cost of science journals worries top science officials*, LIVEMINT, Oct 25, 2012.

access, what actually happened was the opposite; large commercial publishing houses set up huge copyright regimes with high subscription costs of the journals which in turn led to many researchers being devoid of the latest scientific developments in their fields. It is in this context that an analysis of the Open Access Model of publication as an alternative to the traditional reader pays model becomes important. The same is dealt with in the following part.

PART II **ALL ABOUT OPEN ACCESS PUBLISHING**

What is open access?

Under the open access model of academic publishing, work is freely available to the readers across the globe. There are many different models of open access developed by various publishers. However, under the most common model of open access, the author or his/her patron institution pays a fee in order to make the work freely accessible. The open access framework of academic publishing has been largely seen as a welcome measure for general availability and greater dissemination of academic research. Thus, the open access model was seen as a response to pay wall journals and the same is free of any copyright concerns. In fact, certain kinds of open access provide ample of scope to re-use the material though with proper citation.³

A common and accepted model of open access was the one that relied on the payment made by the author or his/her affiliate institution for the publication of research. The model, based on the Article

³ Siladitya Jana, *Copyright Issues in the Academic Environment*, *Annals of Library and Information Studies*, Vol. 65, June 2018, pp. 100-104



Processing Charges (or APC), is an “author pays” model wherein all the costs involved in the review and publication of research are sought to be included in the APC. However, the most commonly used model of publishing is a hybrid of the “author pays” model of academic publishing wherein the author or his/her institution has an option to pay the processing charges in return of open access in an otherwise subscription based pay wall journal. The Hybrid Open Access Model, as it is sometimes called, is a recent development offered by the publishers that helps to provide immediate visibility to the researchers’ works.

There are different types of Open Access Models depending on the availability of articles. For example, the Gold Open Access, also known as the delayed access provides open access after the completion of an embargo period. On the other hand, Green Open Access allows for self-archiving of one’s work in repositories, author or his/her institution’s website at the time of publication of the work. It can be inferred that Green Open Access seems to be a more viable option for authors of scientific research in light of the need of immediate access of the same.

The current scenario: pay walls and high subscription rates

The current environment of academic publishing in India is largely dominated by subscription based journals that have a pay wall before any reader can access them. In fact, some of the most prestigious and highly ranked journals in India still practice subscription based publishing wherein the readers are expected to pay enormous

subscription fee before getting access. There are around 32,000 journals published in India as per the UGC’s list of approved journals. However, The Directory of Open Access Journals lists only 200 journals that are published in India.⁴ On the other hand, the following examples denote the high pay walls of academic journals in India: Indian Journal of Medical Research (Rupees 4,000); Indian Journal of Finance (Rupees 2,600); Young – Sage Publishing (Rupees 17,020); Social Change (Rupees 3,960).

A case for Open Access Publishing

Open Access Publishing seems to be the one plausible solution to the growing menace of high pay walls for scientific journals even when in certain cases the APC is exorbitantly high or is almost the double the amount that the author would have otherwise incurred.

The most promising reason for opting to open access publishing is the immediate availability of research across the globe. This has special ramifications for both the readers and authors of scientific journals. As for readers of science based journals, scientific research needs to be freely and immediately available for future research and developments. Also, it is more likely that an author of a scientific research will be frequently cited if his research is of a recent origin. Studies have shown that archived articles in a science journal are of little importance in further scientific developments as against the current happenings and hence,

⁴ openindia, *Delhi Declaration on Open Access*, OPEN ACCESS INDIA , (Feb. 14, 2018),

<http://openaccessindia.org/category/open-access-policy/>.



the former are hardly downloaded or cited in subsequent research.⁵

Another development pursuant to the existence of high priced pay walls is the growth of alternate tools of research like Academia, Research Gate, Sci-Hub, inter alia. It is evident that such forums violate the copyrights of the publishers as the former provide access to copyrighted material to readers without obtaining proper licenses resulting in the financial loss to the publishers. It is noteworthy, that in a span of 6 months, 3.4 million researchers in India requested for illegal download of papers from Sci-Hub. Also, it is practically difficult to prevent such tools from operating.⁶ In such a situation, open access will prove to be a viable option for publisher who can at least recoup some of the losses otherwise incurred due to the presence of alternative forums like Sci-Hub.

Moreover, the public has an inherent right to have access to research work that is funded by the government agencies from the exchequer that consists of public funds. Unfortunately, what is currently happening is that the publishers extract money from readers for accessing research which is in turn supported by public funds. Thus, people end up losing twice while the publishers make huge undue profits. Hence, this calls for a strong case to support open access regimes as a matter of one's rights.

Open Access Publishing: A Solution?

⁵ Malashichev, Y. 2017. From Open Access to Open Science (Editorial). *Bio. Comm.* 62(1): 3–5. doi:10.21638/11701/spbu03.2017.101

⁶ John Bohannon, *Who's downloading pirated papers? Everyone*, *SCIENCE*, (Apr. 28, 2016, 2:00 PM), <http://www.sciencemag.org/news/2016/04/whos-downloading-pirated-papers-everyone>.

While open access publishing may seem to be a plausible solution to the high pay walls charged by subscription based journals, yet, the current practices of open access are constrained due to certain roadblocks.

First, It has been found in many studies that the Article Processing Charges (hereinafter APC) levied by the publishers on the authors under the Open Access model are exorbitantly high. In fact, as has been highlighted in the study,⁷ the publishers while levying APC keep a huge margin for their own profits thereby making the entire process too expensive for the authors of the works. This in turn makes the entire rationale of open access redundant as the high prices of publishing are beyond the reach of many publishers who then are forced to publish in a subscription based pay wall journal. According to a recent study, the government funding in India is being used to annually spend about 2.4 million USD on open access publishing as APC. This in turn means that large amounts of public funds which could have otherwise been used for supporting research is landing in the pockets of unscrupulous publishers.⁸ In fact, it has been observed that while in Gold Open Access, the APC charges account for a profit margin for publishers, Hybrid Open Access results in double income for publishers: high APC and high subscription rates or pay walls.⁹

Second, the abovementioned dilution and distortion of the concept of Open Access by publishers has been done in multiple

⁷ *Supra Note 1.*

⁸ *Supra Note 1.*

⁹ Richard Poyndar, *Copyright: The Immoveable Barrier that Open Access Advocates Underestimated*, (Feb. 20, 2017), <https://www.richardpoynder.co.uk/Copyright.pdf>.



ways. There are instances wherein the authors are asked to pay a one-time APC under the Gold Open Access and yet are asked to surrender their rights in their work.¹⁰ The demand of exclusive rights by publishers makes them the sole beneficiary of the commercial use of Open Access content. This has serious repercussions as the authors are left with little or no rights even when they pay the hefty and ever increasing AFC. They might as well pay a lesser or no amount to get their article published in a pay wall journal. Similar concerns also arise in Green Open Access since the same is usually discouraged by publishers by placing long embargo periods or other restrictions on open access. All this further adds to the complexity of open access journals which in turn differs for each publisher. For example, the Copyright Transfer Agreement of Wiley publishers states that the author has a right to self-archive the 'Submitted version' of the manuscript and not the 'Accepted version'. Moreover, it further lists a range of conditions to be fulfilled before a work can be placed in the repository.

Third, the journal impact factor, or the average number of annual citations of articles written in a journal is given undue importance in the qualitative analysis of research. In fact, studies point to a strong correlation between the journal impact factor and the costs involved in open access publishing i.e. journals with high impact factors charge an unreasonably high APC.¹¹ In such scenarios, it is the title of the journal that gains importance over the merit of the author's works. This in a ways implies that an average work backed by sound funding

sources can receive more recognition than an outstanding work of science if the latter lacks funds for publication. For example, the International Journal of Chemistry with an impact factor of 1.6 charges an APC of Rupees 8,500 per paper. Similarly, the International Journal of Engineering Science (Impact factor: 1.7) charges a fee of USD 2,500 while the APC for Journal for Applied Research is Rupees 3,500 per paper. And, the Indian Journal of Physics, a hybrid open access journal with an impact factor of 1.16 charges an APC of 3,000 USD.

Another connected issue is that instead of relying on a qualitative analysis of research, the government too seems to follow the journal titles as an evaluation criterion. The recently concluded National Institutional Ranking Framework (NIRF), India Rankings 2018 have assessed the quality of higher education in India based on five broad parameters; research and professional practice being one of them. In fact, it is noteworthy that the survey found a strong correlation between the research rank and the overall rank of the institution.¹² However, what seems problematic is the fact that the survey relied on two citation databases for collecting information regarding publication and citations. The two primary databases were: Web of Science (WoS) and Scopus (Elsevier Science). Moreover, books and monographs "published by reputed publishers" were only considered for the rankings. Not only this, the assessment metric for publications gave the maximum weightage to the Publications reported in Scopus:

$$P = 0.3PW + 0.5PS + 0.1PG + 0.1PI$$

¹⁰ *Ibid.*

¹¹ *Supra Note 1*

¹² Department of Higher Education, Ministry of Human Resource Development, Government of India, India Rankings NIRF (2018)



where, 'PS' stands for publications reported in Scopus.¹³

Scopus is a database of abstract and citations from across the world that consists of peer reviewed journals in various fields. Most of the journals indexed in Scopus are Hybrid Open Access journals wherein the APC ranges between USD 1,100 to anything as high as USD 5,200. On the other hand, the subscription rates are as high as USD 17,220! In such a scenario, it is difficult for majority of the researchers in India to afford such high APCs.

Fourth, the language of the terms and conditions of copyright transfer forms is highly restrictive for the open access culture. While the Indian Copyright Act vests the initial ownership and copyright with the author of the work. Yet, the same can be transferred by way of Copyright Transfer Agreements (hereinafter CTA). Thus, the authors tend to transfer all their rights in the work to the publisher in exchange for publication of their work. Not, only this this, the standard transfer agreements provide authors with limited or no bargaining power. Moreover, the high reputation of publishing houses and the need for publication of the authors tend to tilt the balance away from the authors, in the favour of publishers. It is thus contended that the transfer of copyright and other vested rights leave little or no scope for open access. For Example, according to the CTA of Journal of Nanoscience and Nanotechnology, the contributor assigns the 'exclusive copyright' to the publishers who in turn are free to publish, disseminate, store,

translate, sell or republish the work. In fact the contributors are specifically prevented from posting the article on open websites or disseminating the same through Internet. The Research Publications, India also reserve the right to archive the author's work in the transfer agreement. Interestingly, Sage Publishing signs an exclusive license agreement with the authors whereby the authors retain the copyright, yet the *license to control* all the rights rests exclusively with the Publishers. This in effect renders the author's copyright redundant as they can't effectively exercise it without infringing the license agreement.

Finally, the issue of predatory journals is also on a rise with the increase in open access. Such journals lack a peer review process and all kinds of articles are published for a fee. The "pay and publish" model is used by people who are motivated not by research but by a need for improving their CV or 'research profile'. In fact, many of the reputed journals too are reported to have operating predatory sister journals that publish articles for a fee which are otherwise rejected in a peer review process of the patron journal.¹⁴ Unfortunately, according to a report published in the Hindu, one third of the journals covered under a sting operation done abroad were based in India.¹⁵ In fact as per a UGC notification, as many as 4,305 journals were removed from the list of approved journals in May, 2018 as they were all predatory journals. Thus, while the issue of predatory journals is a real one, yet the same can be tackled if quality of research is given

¹³ Department of Higher Education, Ministry of Human Resource Development, Government of India, A Methodology for Ranking of Universities and Colleges in India (2018)

¹⁴ *Supra Note 1.*

¹⁵ Shubashree Desikan, *Fake open-access journals flourish in India: Science*, THE HINDU, Oct. 24, 2013.



preference over the quantity of articles produced.

Sixth, of late publishers require a Creative Commons license agreement to be signed in cases of open access. The Creative commons license allows the author to retain the copyright while providing a license to copy, distribute and reuse the work with proper citations. However, it is seen that Creative Commons license become complex in open access works. While the rationale for such licenses was to reduce the time required in seeking permissions, it actually ended up benefiting third parties at the expense of the author's work and labour.¹⁶ This has an impact on the Moral Rights of the authors too as their work can be *reused or remixed* without their permission or knowledge.¹⁷

PART III

CONCLUSION: THE WAY AHEAD

It has been seen that with the ever evolving socio-economic conditions of the Indian society, the existing copyright regime needs to be revamped. Open Access Publishing models definitely present a promising solution to support academic researchers. However, what needs to be emphasized is that the Copyright Law of the country needs to be in consonance with the open access system without which the latter is a vehicle sans wheels.¹⁸ This can be specially seen in the scenario where publishers are in fact tweaking the existing open access models to make huge profits at the cost of public funds thereby rendering the whole idea of open access redundant.

As has been mentioned in the preceding part, an overemphasis on metrics like journal impact factor and indexing tend to deviate from the main aim of academic publishing i.e. sharing and exchange of quality research across peers. Thus, the focus should be readjusted on the quality of academic research. The Open Access Policy¹⁹ released jointly by the Department of Biotechnology (DBT) and Department of Science and Technology (DST) under the Ministry of Science and Technology, Government of India strikes a chord in the right direction. The policy rightly discourages the use of metrics like journal impact factors while assessing the quality of scientific research with respect to decision making in hiring, promotion or funding.

Thus, while the open Access model might seem to be inevitable in the existing age of information technology, yet, what needs to be done is to ensure that the same is not exploited by publication big-wigs for their own profits in the name of providing greater access. The publication of open access research journals by non-profit academic societies and institutions will be a right step in that direction. This can also be achieved by encouraging the development of institutional and other government funded repositories that provide soft copies of research without extracting any money from the readers. The establishment of an online public library providing open access to the recent research and scholarly articles in the scientific discourse might go a long way in fulfilling the goals of open access publishing.

¹⁶ *Supra Note 9.*

¹⁷ Creative Commons, Frequently Asked Questions, (Aug 29, 2018, 23:24), <https://creativecommons.org/faq/#how-do-creative-commons-licenses-affect-my-moral-rights-if-at-all>

¹⁸ *Supra Note 3*

¹⁹ Department of Biotechnology and Department of Science & Technology, Policy on open access to DBT and DST funded research (2014).



In addition to this, a provision for self-archiving of authors' works in user friendly interface must be allowed by the government. However, two things need to be in place: one, the government must come up with a binding policy document wherein authors retain their right to publish research in such forums, and, two, the availability of funds for the same. The Open Access Policy released by DBT along with DST too recommends the establishment of an Institutional Repository for maximizing distribution in order to foster a rich culture of research. However, policy recommendations lack a binding force since as per the report, the copyright agreements between the authors and publishers can easily circumvent the report and it merely *"...expects the authors to bring to the notice of publishers their obligations under this policy to deposit the manuscript in institutional or central depository of the funding agency."*

One issue that India needs to resolve is that while it might move towards an open access regime, what also needs to be ensured is that the publishing houses situated in foreign lands too adopt open access. This is particularly important in the case of scholarly scientific research since even today, indigenous research in the country is substantially dependent on foreign research journals. In such a scenario, India needs to assume a leadership role in advocating a global open access policy.

Another problem in using open access model of publishing is the sheer ignorance and the lack of awareness of the authors while signing the transfer agreements.²⁰ Apart from the agreements being in a standard form providing little or no bargaining power to authors vis-à-vis the publishers, what is also

found²¹ is that the authors generally don't go through the Rights Transfer Agreement and as a result, the majority of them are not aware of the nature and kind of rights transferred thereby losing their very right to self-archive their own works. Thus, it is the imperative of the government to devise awareness raising mechanisms for the same. A similar step could be the simplification or development of a standard process during publication which is otherwise made complex. Thus, all the stakeholders involved in academic publishing viz. researchers, publishers, funders, patron institutes, etc. should make a coordinated attempt towards this direction before the open access policy becomes a success.

²⁰ *Supra Note 9*

²¹ *Supra Note 5.*