

Publication models in scientific publishing: to open or not?

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The process of scientific publication entails significant input, not only from the authors but also from the editors, reviewers and publishers. Journals may be published by commercial publishers or by scientific societies, such as the Royal College of Physicians of Edinburgh (RCPE), which publishes this journal. Such published information may be available only to subscribers of the journal (subscription-based model) or freely available to be accessed by anyone i.e. open access (OA) model.¹ In this article, we provide an overview of various models of publication and also briefly analyse some recent developments.

The traditional model of journal publication has been the subscription-based model, wherein the published content is available to the subscribers (individuals or libraries) as printed copies of the journal. With the advent of the internet, subscribers are being given the option of accessing such subscription-based content online, while others can gain access by paying a fee to the publisher. Such subscription fees are used to sustain the operational aspects of publishing, including the printing. Copyright for published information in these journals generally rests with the publisher.² The subscription-based model has been criticised for limiting the access to science to only a few individuals. Concerns have also been raised about limiting the widespread availability of science which is generated with the generous support from the public funds in the first place.³ This led to the development of the open access movement in the late twentieth century.

Broadly speaking, OA publishing entails free access to all published scientific information by everybody. The overarching idea behind OA publishing is to enable wide dissemination of science irrespective of the capacity of the reader to subscribe to the content. Keeping in mind that publishers and journals may go out of business, OA publishing also

envisaged the permanent archiving of published information in OA repositories. PubMed Central (PMC) and the Directory of Open Access Journals (DOAJ) are examples of such repositories of OA journals. Copyright for content published as OA may rest with the authors or with the publishers, however, this does not limit its dissemination, provided the source of such content is cited.³

There are three categories of OA papers. Green OA refers to authors being able to post the accepted versions of their manuscripts in an online repository, while duly acknowledging and linking to the final published version. For example, certain funding agencies like the National Institutes of Health (NIH) mandate the archiving in PMC of a version of all content generated from funds that it provides. Authors may also deposit such content on other websites such as ResearchGate or Academia.edu. A significant proportion of subscription-based journals also permits authors to post their green OA versions of manuscripts after a certain embargo period, ranging from few months to years after print publication in the source journal. Gold and platinum OA refer to content being available as OA immediately after online/print publication. In the gold OA model, the authors (or their institutions or funders) have to pay the article processing charges (APC) to enable such a mechanism,¹ whereas in a platinum OA model, such charges are borne by the scientific societies sustaining such journals.⁴ For example, the *Journal of the Royal College of Physicians of Edinburgh (JRCPE)* operates on a platinum OA model, and the RCPE provides the operational costs of the journal. Figure 1 summarises the different publication models.

Apart from the aforementioned advantages of universal accessibility and permanent archiving, OA publishing has certain other advantages. For example, there is evidence to suggest that papers and books published online with OA may

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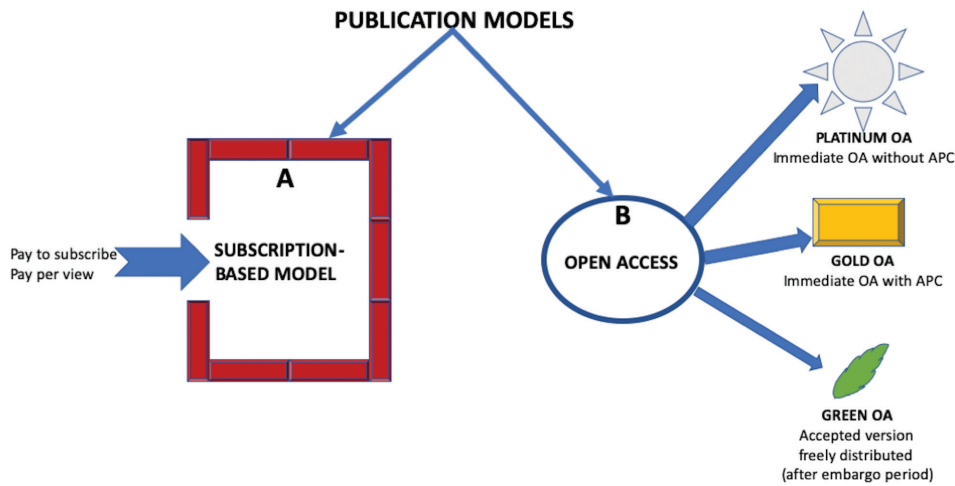


Figure 1 Publication models Subscription-based publication models (A) require a prior subscription, or charge per paper-view. Open access (OA) models either provide immediate OA with (gold OA) or without (platinum OA) article processing charges (APC), or enable authors to provide the accepted version of their manuscript as OA while citing the original version (green OA).

garner a greater number of citations.⁵ Nearly two-thirds of studies analysing the potential citation impact of publication models reported a greater number of citations with OA.⁶ An experiment to enable online OA to nearly 300 books identified a positive citation trend following this step, when compared with another 100 books which had not been made OA. Such a trend persisted even when adjustments were made for the content of such publications in the analysis.⁷ There is also some evidence to suggest that content published as OA receives citations irrespective of indicators of journal prestige, such as the journal impact factor.⁸ On the other hand, the emergence of OA as a viable model for scientific publication has also resulted in the proliferation of low-quality, poorly regulated OA journals (also called ‘predatory’ OA journals) which operate on a model of publishing content without quality controls in order to benefit from APCs. Authors should be wary of and preferably avoid publishing in such predatory OA journals, which are often neither indexed nor searchable.⁹

A significant recent development in the field of scientific publishing has been the proposed ‘plan S’. The background to it is that multiple funding agencies, predominantly from Europe and the Americas, have proposed that all content derived from research funded by them should be published OA. Plan S mandates that such OA journals should preferably be purely OA, rather than the hybrid OA model (i.e. both subscription-based and OA if funding for the same is provided by authors or funders). While such a radical development shall certainly enhance the accessibility of published science, plan S may be criticised for its proposed rigidity in publishing models. This also leaves open the question regarding the ability of authors from less economically developed regions of the world to publish their content, as they may not be able to afford APCs to fund its publication. In this regard, it is worthy of note that the platinum OA model as practiced by the JRCPE provides the best of both worlds to authors and readers, enabling OA publishing without charging any fees.^{3,4,10} ⓘ

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