

# 'Open Access' or 'Open Excess'?: libraries at a crossroads

Comparing the costs of open access (OA) and subscriptions is a hot topic at the present time. However, the results of such comparisons often raise questions. This article attempts to provide a more systematic analysis in the form of a question and answer approach.

The author states that, in the absence of a market for academic publishing, the concept of average publication fees cannot be used for this purpose. A number of attempts are being made to create such a market, but new contracts for hybrid journals may thwart these initiatives. Libraries are at a crossroads. Will they continue in their current role of money collectors for publishers or revert to their original profession: independent quality control?

For the time being, the strict OA policy followed by the Wellcome Trust in the UK has generated a better option for cost comparison.

## Use of terms

Today, an article may acquire a CC-BY licence<sup>1</sup> in one of two ways: either by being published in an 'original' open access (OA) journal, or by being published in a classical subscription journal with an OA option, a so-called hybrid journal. For readers the result is the same: they have free access to the article. Therefore, funders do not usually make a distinction between the two. However, the underlying business model for the two types of journal is completely different. Original OA (OOA) journals follow a service oriented model, allowing for market competition, and are published by new publishers like PLOS. Hybrid OA (HOA) journals maintain the big deal model of the subscription world, avoiding a market situation for OA articles, and are published by established publishers like Springer Nature.

In this article, the author has therefore tried to capture this ambivalent situation by using the following terms:

OA = open access, i.e. applying CC-BY licences

OOA = original open access

HOA = hybrid open access

In a formula:  $OA = OOA + HOA$

## Is open access cheaper than subscriptions?

It can be argued that, overall, open access will be cheaper than traditional subscriptions. Open access, more specifically OOA, is a market-based system based on the provision of services (the organization of peer reviews in particular), as opposed to the subscription system, which is based on the exploitation of copyright monopolies. The effects are twofold: extreme profit margins<sup>2</sup> will disappear and cost reductions, e.g. cheaper distribution via the open internet rather than via a complex legally and technically protected system, will be passed on to the client. So yes, it appears that, overall, open access will be cheaper than subscriptions.

However, this cost reduction cannot be implemented linearly at national or institutional level because the revenue model in the two systems is different. With subscriptions, the reader base determines the institutional costs, whereas with open access, the number of authors



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70 is decisive. So, a country or institution which has mainly readers (professionals, lecturers, students) and few authors (researchers) will certainly benefit from the overall reduction in price. For research-intensive countries and institutions, this is less certain. Most surveys make claims regarding this on the basis of an assumed average publication fee per article. This approach is questionable.

## What is the average publication fee per article?

The most systematic analyses in this field are those carried out by Bo Christer Björk and David Salomon<sup>3,4</sup>. They distinguish between three categories: OOA journals that don't charge a publication fee, those that do, and HOA journals. They investigated the average price for these categories: US\$0 for the first category, US\$904 for the second, and US\$2,727 for hybrid journals.

In order to calculate an overall average, the distribution of the published articles between these categories must be known. In other words, where do authors publish their articles in OA journals? This is determined to a very limited extent by the price.

In terms of numbers, the no-fee journals make up the majority of OOA journals, but these are mainly small niche journals, for example published by a research foundation or institute, and do not attract large numbers of authors. Conversely, the high price of HOA journals may constitute an obstacle, but these are well-established subscription journals in which authors have been publishing for many years; a habit which they would find hard to break. In general, when making a choice, the (perceived) quality of the journal plays a dominant role.

## Is there a relationship between price and quality in the case of OA journals?

Eigenfactor.org has mapped the price and quality of the (985) OOA journals in the ISI citation index for 2012 (see Figure 1)<sup>5</sup>.

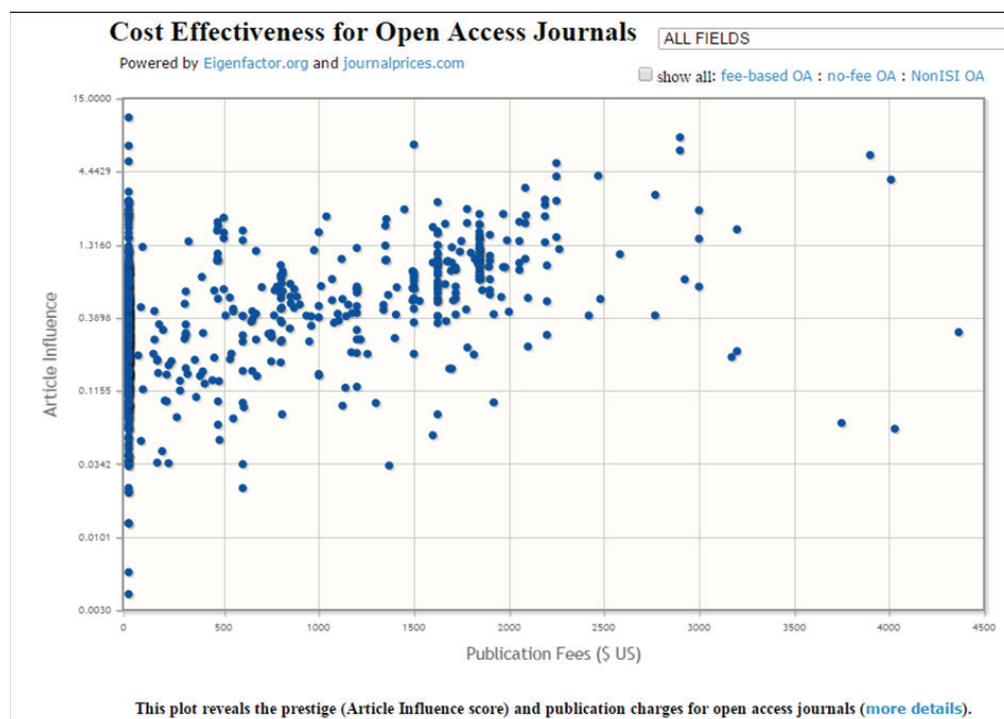


Figure 1. Quality versus price  
 (For an interactive version of this diagram, please see ref. 6.)

The horizontal axis shows the publication fee and the vertical axis shows the average 'article influence' of the journal<sup>6</sup>. Article influence is a 'Journal Impact Factor 2.0', which includes not only the citations of the articles but also the number of downloads and the time spent

71 by readers. (If a reader spends ten minutes consulting an article, this counts more than if he clicks out of it straight away.) In the following paragraphs, for brevity's sake, 'article influence' is referred to as quality.

The large number of journals along the Y axis immediately catches the eye and confirms that the majority of the OOA journals are free. But, contrary to popular opinion, these are certainly not exclusively low-quality journals. The lowest-quality journal is on this axis but the highest-quality journal is too, with an even spread between the two. Clearly, there is no correlation here between price and quality.

'there is no correlation here between price and quality'

But there is such a correlation for the fee-based OOA journals. The diagram shows a clear trend from bottom left to top right, typical of a market situation<sup>7</sup>.

The question is: how will authors behave in this emerging market? On the assumption that they are calculating beings, they will move as far as possible towards top left: high quality combined with a low price. But this assumption is far from obvious. Indeed, in the subscription world, authors were not interested in price. Publishing was free of charge to them. At best, they were aware that the library paid for everything. If this situation persists, author behaviour is unlikely to change. This is not a hypothetical situation. The current negotiations over OA options in subscription journals (hybrid journals) with the large traditional publishers are based on a model in which the library continues the (subscription-based) 'big deal'<sup>8</sup> on condition that the publisher provides articles by authors of licensed institutes with a CC-BY licence. If these costs are not subsequently passed on to the authors, publishing will remain free of charge to them. This creates the anomaly that authors pay nothing to publish in expensive HOA journals, but have to foot the bill if they opt for OOA journals. Clearly, in that case, OA publishing will not be cheaper. Indeed, the big deals will simply continue (albeit for open access) with additional expenses for publishing in OOA journals. 'Open Access' will thus become 'Open Excess'<sup>9</sup>.

Under these circumstances, for the time being, a meaningful definition of the concept of 'average price for OA publishing' cannot be given, let alone calculated.

## Is there a market for open access authors?

At the moment, there is nowhere authors can compare the price and quality of journals that publish articles open access. The concept of journal quality in particular is ambiguous. The Journal Impact Factor is controversial and, more importantly, is not available for newer journals. Altmetrics.org<sup>10</sup> is working on ways of defining the added value of a journal, but has not yet delivered any straightforward quality proxies. Efforts have been made to develop a measure for the editorial quality of a journal but, as yet, these have been unsuccessful<sup>11</sup>.

'The concept of journal quality in particular is ambiguous'

As well as the reputable Directory of Open Access Journals (DOAJ), there have been a number of recent initiatives to help authors find their way around this hectic environment, one of which is Quality Open Access Market (QOAM)<sup>12</sup>. Danielle van Gerestein has made a comparative analysis of a number of these services<sup>13</sup>. When assessing the quality of a journal, most of these services use authors through crowd sourcing. The aforementioned Eigenfactor defines its own journal impact factor. DOAJ enlists the help of publishers<sup>14</sup> and QOAM asks both libraries and authors to complete a Journal Score Card, which results in a strengths, weaknesses, opportunities and threats (SWOT) matrix for each journal<sup>15</sup>.

A second difference between these initiatives is the type of journal that is included in the analysis. Some initiatives include both OA and subscription journals. DOAJ and Eigenfactor only consider OOA journals; QOAM includes all OA journals. QOAM is currently being developed, Eigenfactor is still a pilot and DOAJ is in the process of overhauling its journals list. At the moment, there is no fully-fledged open access market for authors.

Libraries are at a crossroads. Until the turn of the century, quality control formed the basis for the accumulation of highly regarded collections for their readers. This remit lapsed under

72 the influence of the big deals. In the OA world there is once again a need for an unbiased assessment of journals, this time for the authors. Libraries face a strategic choice. Will they continue in their current role of money collectors for publishers or revert to their original profession: independent quality controllers?

## In the meantime, is there anything to say about the price of open access?

There certainly is, but not by speculating about an average publication fee, which all too often appears to be fuelled by the desired outcome.

The Wellcome Trust, a medical research charity in the UK with a research budget of over £700 million, requires researchers to publish the results of research which it funds through open access. This has resulted in an experience base in terms of the costs of this process. An extrapolation to 100% OA (based on 69% OA in 2013) amounts to 1.5% of the research budget<sup>16</sup>. For now, this seems to be the only robust experience-based rating that is available<sup>17</sup>, with the proviso that it relates to the medical discipline, i.e. a discipline which has a high article density. In other disciplines, this percentage may therefore be lower.

The figure specified here enables comparison with the expenditure for subscriptions. A comparison of this nature should of course also include the collateral costs of the subscription system, such as the contractual and ICT costs associated with protection of the content and payments relating to reproduction rights, jointly estimated at 5%. On this basis, an initial calculation can be made of what the financial consequences would have been if the Netherlands had migrated to full open access in 2013.

In 2013, the Dutch higher education and research sectors spent €45 million on journal licences and subscriptions<sup>18</sup>. Including the aforementioned collateral costs, this amounts to a total of approximately €47.5 million<sup>19</sup>.

Finding a non-disputed national budget for article-driven research is less straightforward. In this case, reference is made to an Association of Universities in the Netherlands (VSNU) factsheet which, for 2013, shows a figure of €2,550 million for scientific research in the Netherlands<sup>20</sup>. That means that the open access publication of all results would have cost academia €33.8 million (based on 1.5% of €2,250 million), representing savings of 30%.

Clearly, these figures are open to discussion. The expenditure on article-driven research in particular, i.e. research that leads to articles rather than reports or data, for example, requires further analysis. However, what is more important is the methodology that is used: transparent and scalable. The method can be applied at the level of projects, faculties, institutes and institutions and on a national scale, although a comparison with the expenditure for subscriptions or licences can only be made at the level of an institution or on a national scale.

'what is ... important is the methodology that is used: transparent and scalable'

## Conclusions

1. Open access has two potential advantages:
  - the results of publicly funded scientific research remain in the public domain
  - a market for scientific publishing is created, which will cause prices to fall.
2. If researchers are not faced with the costs of publication in the hybrid open access licences with the large publishing houses, market forces will almost certainly not come into play. Open Access will become Open Excess.

'If researchers are not faced with the costs of publication in the hybrid OA licences ..., market forces will almost certainly not come into play.'

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3. Libraries are at a crossroads: should they continue to act as money collectors for publishers or should they organize an independent marketplace for authors?
  4. The current situation is so turbulent that an average publication price cannot be determined. Predicting the costs of OA publication on this basis is still a bit like gazing into a crystal ball.
  5. A comparison of the expenditure for subscriptions and OA publishing for the Netherlands in 2013 on the basis of the Wellcome Trust's experience rating (with OA accounting for 1.5% of the research budget) is encouraging.

#### Competing interests

The authors have declared no competing interests.

#### Acknowledgements

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JournalReviewer: [www.journalreviewer.org/index.php](http://www.journalreviewer.org/index.php)  
SciRev: [www.scirev.sc/](http://www.scirev.sc/)  
Journalysis: [www.journalysis.org/](http://www.journalysis.org/)  
JournalGuide: [www.journalguide.com/](http://www.journalguide.com/)  
PRE-val: [www.pre-val.org/](http://www.pre-val.org/)  
Eigenfactor.org: [www.eigenfactor.org/openaccess/](http://www.eigenfactor.org/openaccess/)
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[http://www.tweedekamer.nl/kamerstukken/brieven\\_regering/detail?id=2015Z01158&did=2015D02323](http://www.tweedekamer.nl/kamerstukken/brieven_regering/detail?id=2015Z01158&did=2015D02323) (accessed 13 May 2015. NB report is in Dutch).
- 19 Plus non-university cash flow of €5-€10 million for (commercial) subscriptions and the purchase of individual articles (ref. 18, p.7). Clearly, these costs do not affect the university budget but they are nonetheless social costs of the system.
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[http://www.arnovanthoog.nl/wp-content/uploads/2012/09/factsheet\\_bezuinigingen\\_op\\_wetenschappelijk\\_onderzoek.pdf](http://www.arnovanthoog.nl/wp-content/uploads/2012/09/factsheet_bezuinigingen_op_wetenschappelijk_onderzoek.pdf) (accessed 13 May 2015).  
The amounts in Tables 1 and 2 in the factsheet are added together.

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