Researchers key in the movement toward Open Science

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In 2016, new goals were introduced into the negotiations on access rights to online academic journals. One of these goals was to advance Open Access publishing among Finnish researchers. Open Access publishing guarantees optimal visibility and further use of science and research, in addition to which it curbs the increase of publishing costs incurred by the academic community.

In Finland, access rights to academic journals are negotiated by the FinELib consortium, a cooperative body of Finnish institutes of higher education, research institutes and public libraries. Finland is striving to negotiate models that enable transition to fully Open Access publishing as rapidly as possible. The goal for the transition period is to strike a deal by which, firstly, the academic community will gain access to a large number of academic publications at a reasonable price, and secondly, researchers will have an opportunity to publish their articles using Open Access options more easily and affordably than before. These goals are strongly supported by the academic community; in 2016, more than 2,700 researchers signed the Tiedonhinta.fi statement by which they pledged not to participate in the academic journals' editorial boards or peer review processes unless these goals are met.

FinELib successfully negotiated agreements to decrease the Open Access publishing costs of Finnish researchers with two publishers. However, consensus on Open Access publishing could not be reached with all publishers. Open Access publishing is the goal in future negotiations as well.

Main points of the article:

- Openness is essential for the reliability and impact of science and research. Research results and other materials should be made available to all interested parties for access and use without delay.
- The more researchers use OA journals and self-archiving in institutional or discipline-specific repositories, the more likely we are to reap the benefits of being Open. In addition, self-archiving guarantees the long-term availability of publications.
- Currently, most publications can only be accessed by paying a subscription fee, the amount of which is determined in negotiations with publishers. Permanent Open Access to all publications could be implemented at a cost equivalent to or lower than the current subscription fees.
- Academic publishing is in a crisis, as the subscription fees charged by international publishers increase constantly to the point of becoming unaffordable to libraries. Many publishers consider Open Access a threat to their business operations, and there is no competition in the field to rein in the costs. In addition, researchers, peer reviewers and scientific editors often work for journals without pay.
- The FinELib consortium, which handles all of Finland's negotiations with publishers, first adopted the goal of significantly increasing Open Access publishing without an unreasonable increase of costs in 2016. This objective was only reached in some of the agreements, but the work will continue in future negotiations. The academic community supported the negotiations with its tiedonhinta.fi statement.
- Academic publishing is an international business, which is why the transition to Open Access publishing requires extensive international cooperation. A joint call for Open Science from the global academic community will put pressure on the publishers to transition to Open Access publishing.

What is Open Science?

The internet and the digitalisation of information have increased the amount of available information and facilitated its distribution as well as user access to it. Researchers also wish to make use of new opportunities brought about by digitalisation. The availability and usability of information are promoted globally in the name of Open Science, on the grounds that users should be able to distribute and use information resources as freely as possible.

According to the principles of Open Science, research conducted primarily with public funding should be freely available to the public. Phases or parts of research can only be kept confidential for compelling legal, ethical, financial, or other reasons. Open research findings should be freely available online and accessible to any interested persons or parties. These requirements to be Open pertain not only to research publications, but also to research materials, methodological data and the documentation of the research process. The open publishing of science and research is known internationally as *Open Access* (OA).

Open Access aims to improve the reliability and impact of science and research. Research results and other materials should be made available without delay to all interested parties as well as for the purposes of further research, societal decision-making, and business activities. Openness is also expected to enhance the effective use of resources in science and even decrease research costs.

Gold, Green and Hybrid – Open Access options

Immediate Open Access

Currently, there is widespread discussion on the best ways to increase the openness of research publications. Open Access is promoted primarily in two ways, which are immediate Open Access (*Gold OA*) and self-archiving (*Green OA*). Immediate Open Access refers to publishing articles in a full Open Access journal or book that readers can access free of charge. These OA journals and books often cover publishing costs by charging the authors article processing charges or APCs. More and more new OA journals are being established around the world. High quality OA journals follow the same principles as subscription journals: for example, both verify the scientific quality of manuscripts through a peer review process. However, in recent years there has been concern over the quality of OA journals, as among them are also some questionable journals that do not have appropriate peer review processes, aiming instead to only maximise their profits. To help its members assess the quality of new journals, the academic community has compiled various lists and criteria, such as the Directory of Open Access Journals (DOAJ).

Publishing in hybrid journals

Researchers want to publish their results in journals that are as established and esteemed as possible to gain academic merit in order to advance in their careers. Therefore, a newly established OA journal is not their first choice of publication forum. This is one of the reasons why many publishers also offer researchers an opportunity to publish articles openly in traditional subscription journals. In this case, authors purchase immediate Open Access to their articles by paying an APC determined by the publisher. These journals are known as hybrid journals. Other articles in the journal are behind a paywall and only accessible to subscribers.

Self-archiving

Researchers can also self-archive their articles openly, which is known as Green OA. In self-archiving, the final draft of the article (the peer-reviewed manuscript approved for publication) is saved in an open repository maintained by the researcher's home organisation or discipline.

Self-archived articles are generally not identical to the versions published in a book or journal, which may cause problems if the content or formatting of the two versions vary. In addition, most publishers restrict the self-archiving of articles by determining an embargo period starting from the date of publication, during which self-archived copies may not be made public. Depending on the publisher and discipline, embargo periods may vary from six months to as long as four years.

All institutional or jointly operated repositories in Finland can be accessed free of charge. In addition, there are many free and open international discipline-specific repositories available as well. Researchers may choose to save their articles in several repositories, because this only improves the article's online availability and visibility. Self-archiving also ensures the long-term availability of articles if, for instance, the journals in which they were originally published are discontinued.

Who profits and who pays for the publication?

For the researcher, article processing charges incurred from Open Access publishing may prove an additional burden if they themselves must pay the charges. In regard to the publishing costs, publishing in a subscription journal and ensuring Open Access through free self-archiving may be a more attractive option. But when it comes down to it, is anything free? In reality, publishing always comes with costs; only the payer varies.

Publishing in a subscription journal is not free. Instead of the researchers, the costs are incurred by the readers, who gain access to the journal by paying a subscription fee. In 2015, Finnish libraries paid academic journal publishers some 27 million euros in subscription fees to provide access to the journals for the staff and students of their host organisations (avointiede.fi). Globally, academic journal publishers receive approximately 7.6 billion euros in subscription and other fees annually. With some two million articles published in academic journals each year, the price of a single article comes to approximately 3,800 euros (Ilva et al. 2016, Schimmer et al. 2015).

With Open Access becoming more widespread, the publishers of subscription journals have been able to gain even more profit. Today, it is quite common to negotiate subscription fees as large journal bundles or *big deals,* the prices of which are constantly on the rise. In addition, the publishers of hybrid journals get paid twice for their Open Access content, first as article processing charges and then as subscription fees from libraries. This is known as *double dipping*.

Self-archiving is beneficial due to the lack of costs to researchers, but in actuality it is not free, either. The costs of self-archiving consist of the maintenance and development of the electronic repositories. Self-archiving research papers in these repositories increases the number of Open Access publications and promotes Open Science, but it does not solve the problem of the constantly rising prices of the *big deals*. Libraries must continue to subscribe to the publishers' journal bundles and pay the large annual fees in order to provide the researchers access to the articles immediately after publication.

Transparent pricing curbs the increase of overall costs

Open Access to all publications could be implemented at a cost equivalent to or even lower than current subscription fees. According to a recent report, the price of individual articles in Open Access publications would be considerably lower than the average price of 3,800 euros mentioned above, since Open Access journals often charge APCs of only 2,000 euros or less (Schimmer et al. 2015). However, remedying the current situation would require that research organisations and libraries only pay publishers for the publishing, rather than for access rights as well. In this case, the journal-specific publishing fees of individual articles would have to be made public. Being able to verify and compare the publishing costs would be essential for reducing them.

Currently, the prices of subscription journals and *big deals* are negotiated organisation or consortium specifically or nationally. Publishers base their pricing schemes on various confidential factors. That is why it is impossible to compare the prices of different journal bundles or institutional subscriptions. If the price-per-article of academic journals was public information, researchers would be able to compare the publishing costs of articles in relation to the quality of the journals. Such transparency would rein in overall publishing costs.

Are we able to transition to completely Open Access publishing?

Most academic publications are available to readers for a subscription fee. Many international publishers consider Open Access to be a threat to their business and are therefore not particularly willing to change their practices. In recent years, however, some publishers have begun to support Open Access. For example, publishers involved in Open Access efforts have founded the Open Access Scholarly Publishers Association (OASPA) which strives, among other things, to improve Open Access standards and practices. In addition, OASPA promotes the use of the Creative Commons CC BY licence, which enables the distribution and editing of the publication and data even for commercial purposes.

The transition to full Open Access requires publishers to make major changes to their operations, as suitable business models must be created for the new situation. In addition, researchers have long worked for publishers free of charge to accrue academic merit. Unless the global academic community demands a change, the publishers currently enjoying both an oligopoly status and the benefits of the lack of competition are not likely to be interested in creating alternative business models.

International cooperation to put pressure on publishers

It is vital to make Open Access a central goal of journal subscription negotiations as global as possible. A joint international effort to promote Open Science increases the pressure on publishers to transition to Open Access publishing. At the moment, countries such as Germany, the Netherlands, France, Sweden and Austria actively promote this in their respective negotiations. The number of Open Access articles globally may grow rapidly as more countries conclude agreements, which guarantee Open Access with scientific publishers.

Finland participates in international cooperation on several forums, such as Open Access 2020 (OA2020), the European University Association (EUA), the League of European Research Universities (LERU) and the Association of European Research Libraries (LIBER). The European Union also has a clear goal to transition to Open Access publishing by 2020. This international joint effort aims to increase the number of openly available articles as rapidly as possible. The ultimate

goal is to reach a balance where libraries would no longer be required to pay subscription fees and publishers would not have to maintain their subscription systems.

We have to start somewhere: Open Access in journal negotiations in 2016

In Finland, the journal negotiations of many big deals are handled by FinELib, a consortium of Finnish universities, universities of applied sciences, research institutes, and public libraries. In 2016, FinELib first adopted the objective of significantly increasing Open Access opportunities for Finnish researchers. Negotiations were held with Elsevier, Wiley, Sage, the American Chemical Society, and Taylor & Francis, as their big deal agreements were expiring at the end of 2016. The negotiations aimed to improve Open Access processes and decrease the costs in order for the majority of Finnish researchers to be able to easily choose Open Access options to publish their findings.

FinELib also negotiated with the publishers on Open Access licences. The goal was for publishers to allow researchers to use Creative Commons (CC) licences without an additional fee. These licences specify the terms and conditions for the further use of articles and data. Another goal was to aid the researchers in choosing the appropriate licences.

Academic community concerned over the price of information

The academic community supported FinELib during the negotiations of 2016. The Tiedonhinta.fi statement published at the end of November quickly garnered more than 2,700 signatures. The signatories support FinELib's goals by pledging not to participate in scientific journals' editorial boards or peer review processes unless the desired goals were met. The statement also attracted positive attention internationally.

Small victories in negotiations

Some publishers already have models for implementing Open Access, in addition to which they have concluded pilot agreements for Open Access publishing with, for example, Dutch universities,

the Max Planck Society in Germany, and various other research organisations. FinELib successfully negotiated agreements with Taylor & Francis and Sage to decrease the article processing charges incurred by Finnish researchers. Taylor & Francis gives Finnish researchers a 60% discount and Sage an almost 90% discount on the article processing charges of hybrid journals. The agreement term with Taylor & Francis is two years (2017–2018) and the one with Sage is three years (2017–2019).

Work to promote Open Access will continue in future negotiations

Unfortunately, FinELib was unable to reach an agreement on Open Access publishing with Elsevier, the American Chemical Society, and Wiley. With these publishers, one-year agreements (2017) on having access to their electronic journals were concluded. Negotiations on Open Access publishing and the access to journals as a whole will continue in 2017. At the same time, negotiations will be initiated with publishers whose agreements will expire at the end of 2017, such as Springer and Wolters Kluwer. Negotiations on better Open Access publishing terms will also continue with those publishers who already provide Open Access options for Finnish researchers. Negotiations will be continued until satisfactory agreements are reached.

Conclusion

The goal of both Finland and the global academic community is to gain Open Access to all scientific publications quickly, permanently, and immediately. However, this cannot be achieved overnight. Reaching these goals requires extensive international cooperation and the support of both individual researchers and the academic community as a whole. The ultimate goal is for Open Access to become an established academic publishing practice that maximises the visibility of scientific research and facilitates the further use of results. Once Open Access is established, publishing costs will no longer spin out of control.

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