

Sustaining the knowledge commons: a correlation study of journals using article processing charges

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Background

The SSHRC Insight Development project *Sustaining the Knowledge Commons* (2014-) seeks to build on the momentum towards open access over the past decade to determine the means of ensuring an economically sustainable fully open access system of scholarly publishing. The idea of the knowledge commons is a global one in which all of humankind's knowledge is shared openly with everyone (with some appropriate limitations for example to accommodate protection of personal privacy). A knowledge commons is a global pool of knowledge where everyone qualified is welcome to contribute.

The concept of the knowledge commons is expressed by the vision statement of the Budapest Open Access Initiative (2002):

An old tradition and a new technology have converged to make possible an unprecedented public good. The old tradition is the willingness of scientists and scholars to publish the fruits of their research in scholarly journals without payment, for the sake of inquiry and knowledge. The new technology is the internet. The public good they make possible is the world-wide electronic distribution of the peer-reviewed journal literature and completely free and unrestricted access to it by all scientists, scholars, teachers, students, and other curious minds. Removing access barriers to this literature will accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge.

Sustaining the Knowledge Commons explores the economic transition to open access from several perspectives. One avenue is a **macro-level analysis** of the feasibility of a global shift from supply side economics (subscriptions / purchase) to demand / production side economics to support open access. Morrison's (2013) calculations suggest that it is possible to support a full flip to open access for scholarly journals supported solely by the current global spend of academic libraries. There is potential to accomplish this shift at a significant reduction from current expenditures, assuming some cost efficiencies. Examples of efficiencies could include prioritizing support for the "renaissance of scholar-led journals" described by Edgar and Willinsky (2010) and/or the modest costs of current commercially successful open access publishers such as PLoS, BioMedCentral and Hindawi.

Resource requirements for small scholar-led journals similar to the OJS journals surveyed by Edgar and Willinsky (2010) is being explored through a qualitative-to-quantitative approach. Interviews and focus groups with editors of scholarly journals are underway to determine the human and technical support needs for quality publishing in a fully open access environment. Costing of technical support requirements for scholarly publishing will be pursued using a case study approach.

The current study we propose to present at CAIS builds on a May 2014 survey of journals listed in the Directory of Open Access Journals (DOAJ) using the OA APC model (Morrison,

Salhab, Calve-Genest & Horava, 2015). This was a descriptive study of the charges, publisher size and type, and pricing variations used by the minority of fully open access journals (26%) that use the APC model. The average APC is important to the macro level analysis as one indicator of the potential global cost of a shift to open access. The macro level analysis will be revisited at a later stage in this project. The 2014 survey is also the foundation for planned longitudinal studies that will identify and track trends with the APC model. This line of research builds on previous major studies by Björk & Solomon (2012, 2014) and Solomon & Björk (2012).

Method and rationale

The current study explores correlations of data obtained through the May 2014 DOAJ survey (whether journals use the APC model, and if so, what amount) with variables in the DOAJ downloadable metadata file from that time frame (particularly subject data) and other datasets obtained in May 2014 via DOAJ screen scrapes (number of articles per journal available through DOAJ, journals that have no charges, conditional charges, or no information available on charges).

Questions being explored include:

- Are some subjects (using the DOAJ subject categories) more likely to use APCs than others?
- Is there a correlation between subject as listed in DOAJ and the amount of APC (for journals using the APC method)?

Some fields such as biomedicine have well-established open access publishers such as BioMedCentral and Public Library of Science that use the APC method. It is hypothesized that the potential for success of the APC method will reflect both the traditions of academic communities and the availability / generosity of funding and that these will be reflected in quantitative differences in the current dataset.

- Is there a correlation between availability of article-level metadata in DOAJ (possibly an direct indication of technical sophistication of the journal), tendency to use the APC method and/or level of charges?
- For the journals for which article-level metadata in DOAJ is available, is there a correlation between journal size (number of articles per journal) and level of charges?

It is hypothesized (with some support from qualitative data from the May 2014 survey) that there will be a positive correlation between journal size and number of articles, and that this correlation may be differentiated by publisher type. Qualitative information gathered during the May 2014 DOAJ APC survey indicates that at least some publishers of new journals using the OA APC method are providing free or low APCs initially to attract submissions, with the intention of charging or raising APCs after the journal becomes established. For example, some publishers have statements to this effect on their websites. Hindawi, a publisher with a business model relying solely on OA APCs, routinely provides free publication in a substantial percentage of their journals on a rotating basis, as explained by Hindawi's Paul Peters (2013). This practice is so common the OA APC mode for the 2014 DOAJ survey was \$0. It seems logical to assume that certain publisher types, particularly commercial publishers, would be more likely to seek to raise prices when

journals are successful than other publisher types, such as not-for-profit, university or society publishers.

- Does the number of articles published by journal reflect the same skewed distribution as the journal size skew found in the May 2014 survey?

In the May 2014 survey, one of the key findings was a skewed distribution of publisher size, with most publishers in DOAJ using the APC method having 50 or more journals with APCs or less than 9, with one-off journals being the most common pattern. In other words, these publishers tend to be very small or quite large, with few in the middle ground. This finding is similar to the findings of Thompson (2005, p. 63) with respect to scholarly monographs and Crow (2006) with respect to scholarly journals. If this tendency to skew towards the very small or very large can be confirmed through further studies, this is important to understand. In the short to medium term, this would suggest that the choices for scholarly publishing are an increasing tendency towards concentration, or diversity through large numbers of small journals and publishers, or a combination of the two. This would tend to support arguments for library based publishing services that host smaller journals produced by local faculty members as an alternative to the concentrated market. In the medium to long term this would make a case for further research into whether there are economic factors mitigating against the success of medium-size publishers, potentially limiting diversity and competition, and if there are such mitigating factors, whether there are steps that could be taken to improve the chances for success of the mid-sized publisher.

Project status: the data for this study has been gathered and is in the final stages of collation. Analysis of results will be complete and ready for presentation by June 2015.

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