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Open access and research assessment in social sciences

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Abstract

Open access (OA) – free and unrestricted online access to research publications – is increasingly encouraged, required, and monitored at various levels which has made it a top topic within science policy during the last decade. This chapter focuses on the intersection between assessment and OA, highlighting the social sciences and especially the diversity of research output. OA should be considered as a part of research assessment, as it contributes to quality by enhancing transparency and impact. Using OA as a criterion in assessment may discriminate against researchers, institutions and fields with locally oriented research missions and less OA-resourceful research environments. There are also potential system-level risks of endangering multilingual scholarly communication, and promoting quantity in publishing at the expense of quality. When hiring, promoting and funding individual researchers, experts should assess the quality of research based on the contents rather than the journal or publisher or open availability of publications.

Keywords

Open Access, Research Assessment, Social Sciences, Scholarly publishing, Scientific publications

1. Introduction

Open Access (OA) publishing – free and unrestricted online access to research publications – has become an important international science policy goal. It is widely agreed that the main advantage of OA is the rapid and unrestricted dissemination of research results within and beyond academia, with potential to make research more efficient and impactful. OA removes barriers for maximising the impact of research publications, which has facilitated the inclusion and promotion of OA through science policy at institutional and national levels around the world. Acknowledging the impact benefits of OA, research funders have been among the most prominent and stringent facilitators of OA, where funded research is often required to be made OA. The purpose of this chapter is to explore how OA is taken into consideration in assessment specifically in the context of the social sciences. As this chapter will further elaborate, the connection between OA and assessment is complicated, as evaluation happens at various levels whenever publications are considered.

Scholarly publications can become OA through many different processes, which is a major factor introducing complexity in both policy formulation and assessment. The terminology for what the different forms are labelled is still evolving, most of which are non-exclusionary, as new options and pathways emerge. For a comprehensive review of OA pathways, the evolving terminology, and dimensions of openness of published outputs please see Martín-Martín et al. (2018) and Taubert et al. (2019). Indeed, in considering Open Access as a criterion in assessment, it is important to remember that OA is much more than just free online access to publications. For example, research funder criteria for OA can consist of policy requirements regarding reuse licensing (CC-by), copyright retention, peer review and APC-waiver policies, as well as technical requirements regarding the use of Digital Object Identifiers (DOIs), long-term preservation, machine-readable full-text format and embedded licensing info (Frantsvåg & Strømme, 2019).

Journals that make their entire output available OA immediately at time of publication are commonly referred to as gold OA. Subscription-based journals where authors can optionally pay a one-time fee to make their individual article OA directly on the publishers pages is

referred to as hybrid OA. Journals that make their content available OA after a delay or where there are some other restrictions or uncertainties regarding the comprehensiveness of access are referred to as bronze OA. In addition to these forms of OA that are provided directly by the publication channel, OA versions of the content can also be provided elsewhere on the web, a form that is referred to as green OA (Harnad et al., 2004). This is commonly realised in practice as authors upload accepted manuscript versions of their published texts to open web repositories after a potential publisher-imposed delay.

The relationship between OA and research assessment has been relevant but complex and also controversial ever since OA became a technically and practically viable option for scholarly publications in the early 1990s (Björk et al., 2016; Moore, 2020). Now there is an urgent need to take OA into consideration in assessment of research, and to make it rewarding for institutions and researchers. Yet, it remains far from clear how to include OA in evaluation or funding criteria, how to define and analyse OA publications, and what challenges this entails for different scientific fields? Can using OA as a criterion in recruitment, promotion and funding discriminate against candidates from diverse backgrounds? Moreover, can inclusion of OA among assessment criteria have negative systemic consequences for individual researchers, research institutions or scholarly communication more broadly?

The chapter is structured as follows: In the next background section, we raise the main questions relating to OA in research assessment and present a few concrete examples of OA assessment criteria from Europe. In the third section we discuss the motivations and challenges of analysing OA publications, and in the fourth section we discuss the considerations specific to social sciences. In the final section we provide conclusions.

2. Background

Practically all assessment procedures, in which the research of individuals and/or institutions is evaluated (including recruitment, promotion, funding, learning, improvement, management and steering), rely on qualitative and/or quantitative analysis of research results published in peer-reviewed journals and books. The relationship between OA and assessment is complicated because in addition to promoting wider access and impact of research, OA policies are also concerned with the costs and business-models of scholarly publishing and challenge some of

the traditional standards of research quality. OA started bottom-up by scholars, but has become integrated into the still dominant subscription-based business models of large international scholarly publishers (Schöpfel, 2015). Journals publishing all their content OA (gold OA), either free of charge or with article processing charge (APC), are relatively new and in many fields remain disadvantaged in terms of quality, impact and prestige as perceived by researchers and evaluators (see e.g. McKiernan et al., 2019; Morais & Borrell-Damián, 2019; Niles et al., 2020).

Most highly-esteemed international journals generate considerable profits for their publishers through institutional subscriptions but are free for authors to publish in. These journals benefit from a well-established reputation for selectivity, inclusion and proven impact in the international citation databases like Web of Science (WoS) and Scopus. They have also developed routes to making some of their contents OA via payment of an optional APC (hybrid OA) or self-archiving (green OA). OA journals that are free for authors are typically published by not-for-profit organisations, such as research institutions and learned societies (Late et al., 2020), and they often lack resources and professional editorial and technical support to compete with the subscription-based journals at scale, especially at the international stage. Some newly established OA journals that rely on APCs provide fast and less selective editorial and peer review procedures, which practices are traditionally not associated with high standards of quality (Van Vlokhoven, 2019).

In the research community there has also been increasing concerns about so-called “predatory” or questionable journals that exploit the APC business-model for profit by pretending but failing to carry out a proper editorial and peer review procedure supporting quality control (Eykens et al., 2019). Identification of “predatory” journals used to be based on Jeffrey Beall’s list, however this list has proven controversial and has been abandoned since 2016 (Krawczyk & Kulczycki, 2021). Since then, Cabell’s has published a list of “predatory” journals based on a large number of more or less severe criteria. The Directory of Open Access Journals (DOAJ) publishes a list of journals removed because of editorial misconduct. At least in Cabell’s list, “predatory” journals appear to be somewhat more frequent in some social science fields, such as business and education. Yet, many OA journals have gained reputation for strong peer review, transparency and impact, ranking among the most highly respected publishing venues of their fields. So based on this one could argue that OA publishing in itself is no determinant of quality.

Another complicating factor is the association between the journal prestige hierarchy and the quality of individual articles published in journals. There is a long tradition of differentiating, prioritizing and ranking journals based on citation metrics and expert-opinion (Pölonen, Guns et al., 2020). Many research-performing and funding organisations rely on journal metrics, such as Journal Impact Factor (JIF), or the inclusion of journals in WoS and Scopus, as criteria for funding, assessment and evaluation procedures (McKiernan et al., 2019; Saenen et al., 2019). Assessments using JIF or WoS indexing as criteria tend to be favourable to subscription-based journals in many disciplines (Liu & Li, 2018), and can thus be seen as a potential conflict between research assessment and policies promoting OA. Accordingly, research organisations and funders are strongly encouraged to engage expert-evaluation and avoid using journal metrics in assessment of individuals (e.g. DORA, 2012; Hicks et al., 2015). In addition, a broader range of open science and OA criteria should replace the narrow focus on peer-reviewed journal articles in the evaluation of research performance, career development, and research funding (O’Carroll et al., 2017).

Policy support for OA in Europe

In 2016, the European Union member states agreed to an ambitious OA policy aiming at “open access to scientific publications as the default option by 2020” (Council of the European Union, 2016). The European Commission has developed the European Open Science Monitor to provide regularly updated country-level metrics on OA development (European Commission, 2019; Waltman, 2019). Advancement of OA is measured based on the OA (Gold, Green, Hybrid and Bronze) share of all articles published in journals indexed in Scopus (European Commission, 2019). The EU also requires that all beneficiaries under the Horizon 2020 research and Innovation programme “must ensure open access to all peer-reviewed scientific publications relating to its results”, including Gold, Hybrid and Green OA. The Open Science Career Assessment Matrix (OS-CAM) by a European Commission Working-group on Rewards under Open Science proposes a range of possible open science evaluation criteria for research performing and funding organisations, including “publishing in OA journals” and “self-archiving in OA repositories” (O’Carroll et al., 2017). In March 2021 the European Commission will launch Open Research Europe, an open access publication platform intended for dissemination of research outputs stemming from Horizon 2020 funding across all subject areas.

Several European countries have introduced OA criteria for the public funding of universities. In the UK, the Research Excellence Framework (REF), the current edition of the famous performance-based research funding system (PRFS), determines the allocation of government funding to universities based on peer-assessment of research outputs, impact and environment every 7 years. According to a new OA policy requirement introduced in 2021, journal and conference articles will be considered only if “the accepted version” has been deposited in an OA repository “no later than three months after acceptance”. This requirement does not apply to articles in books or monographs. In Finland, PRFS distributes core-funding from the government to universities annually based on indicators of educational and research performance, including the research publication output (Pölonen, Laakso et al., 2020). Since 2015, peer-reviewed outputs are counted with different weights determined by the publication type (a monograph is worth 4 articles in journals, conferences or books) and the Publication Forum quality level (0-3) of the journals/series and book publishers. Starting from 2021, an additional weight of 20% is given to all peer-reviewed OA outputs to provide universities incentives for OA (Gold, Green, Hybrid, with or without embargo).

Research funding organisations have also introduced new incentive structures promoting OA. An international group of research funders, cOAlition S led by Science Europe, made immediate OA (preferably Gold or Green) and unrestricted use a requirement for all published research funded by the signatories by 2021. This initiative, referred to as Plan S, concerns only journal articles, while OA requirements for peer-reviewed book chapters and monographs will be determined later. Plan S promotes transparent and reasonable APCs. Funders expect researchers to present an OA publishing plan, justify the use of funding for APCs, and possibly face sanctions for publishing in non-compliant platforms. These funder policies have also created critical debate from the perspective of journal selection, as many researchers have expressed concern that they are prevented from publishing in the leading journals of their field (De Bruin et al., 2019). In any case, the Plan S entails a substantial change in the researchers’ publications patterns and the scholarly publishers’ publishing practices (Korytkowski & Kulczycki, 2021).

While most assessment of researchers - recruitment, promotion, funding - takes place at research performing organisations, a recent report by the European University Association (EUA) concludes, based on responses to a survey from 260 universities, that “Open Science

and Access... is not commonly included in university incentive and reward structures” (Saenen et al., 2019). This finding may seem surprising, given that there is a strong uptake of OA policies among European Universities: over 60% of the surveyed 321 institutions had a policy in place already, and over 25% were planning to implement one. This creates a tension between what is requested or required to be done in comparison to what is currently valued and rewarded. Some universities have started aligning OA and open science policies with recognition and reward systems in institutions like Utrecht University (Utrecht University, 2020) but such explicit statements are still rare.

Research is global, but scholarly publishing and in particular OA have developed unevenly and in different ways in various parts of the world. A specific characteristic regarding OA is that institutional policies are very common among European Universities (Morais & Borrell-Damián, 2019), many European research funders are signatories of the Plan S requirements for funded research, and national libraries in Europe have been in the forefront of negotiating agreements with publishers that also includes OA elements (OA2020.org). In Europe the pace towards openness has been fast in recent years with no indications of losing momentum. This will increasingly influence publication choices and patterns for researchers in the region, raising the question of whether and how this should be acknowledged when making international comparisons of research outputs? If recruitment criteria include OA as a merit for candidates, those who have been privileged to have had affiliations to institutions or received grants from funders that pay for OA publishing have had more options at their disposal (by being able to publish in APC-based journals).

3. Assessing and analysing Open Access

How OA is defined relates also to an even more fundamental question - why take OA into account in assessment? Is it means to an end, or an end in itself? When considering OA, it is important, firstly, to define what is meant by OA. Once OA is defined, it is important to consider how to identify OA publications, and what information sources to use in the assessment. Due to the diverse and distributed nature of OA, obtaining comprehensive data on its development has remained a persistent challenge (Pölonen, Laakso et al., 2020).

Why consider Open Access in assessment?

There are many reasons why research funding and research performing institutions may wish to include OA among assessment criteria. It is important, firstly, to consider the relationship of OA to research quality, which typically is the most important aspect of assessment. Research quality has proven to be an elusive as well as field and context dependent concept. For the purpose of this chapter, we assume that research quality has at least the following main dimensions: solidity, originality, scholarly relevance and practical utility (Aksnes et al., 2019; Gulbrandsen, 2000). It should be clear that research can have high quality in all or any of these dimensions irrespective of whether the published output is OA or not. It can be argued, nevertheless, that OA contributes to quality by maximizing the impact potential of research both within and beyond academia. Bibliometric research based on WoS data shows that in large quantities of publications the OA articles of subscription-based journals have a citation advantage compared to closed output (Piwowar et al., 2018). At aggregate level, the output from gold OA journals in WoS, perhaps due to novelty as well as local orientation of many of their publication profiles, does not show similar impact advantage as measured by citations (Piwowar et al., 2018). In all cases, OA is expected to provide broader access to research results for all members of society (Zuccala, 2009). This has yet to be fully studied and evidenced. OA also contributes to a scholarly communication environment in which research results can be evaluated, tested and debated more rapidly and transparently, thereby enhancing quality and equality of the research process. Consequently, following the Hong Kong Principles for assessing researchers (Moher et al., 2020), OA can also be seen as one of the key dimensions of research quality.

Besides considerations related to research quality and impact, other reasons for considering OA in assessment may include the need to promote and monitor the progress of OA policies. International and national governments, institutions and funders invest considerable amounts of resources, time and effort to advance OA. One more reason for assessing OA relates to management of the rapidly increasing costs of publishing. OA policies might include upper price limits on the APCs they fund, or might entirely exclude funding of certain OA models. Hybrid OA has been one of these controversial models where e.g. Plan S funders are not funding such fees from grants. The main issue with hybrid OA has been the expensive fees (compared to gold, especially diamond OA journals) and the lack of transparency about whether and how such articles are reducing subscription fees (Mittermeier, 2015). An important goal of OA policies is to send a strong message to pressure large commercial

publishers, whose profits rely mainly on journal subscriptions, to develop OA publishing and self-archiving options that are affordable to institutions and researchers.

For authors OA has introduced new choices and trade-offs when it comes to selecting publication channels for research. In recent survey studies, OA has been seen by faculty as a lower priority than other journal attributes, such as quality and reputation of journal, fit with scope of journal, audience, impact factor, likelihood of acceptance, time from submission to publication, and editor or editorial board (Tenopir et al., 2016). Getting published in a highly ranked or prestigious channel has been seen as an inhibiting factor for both rapid transformation of the scholarly journal landscape as well as making it hard for newly-founded OA journals to compete with older subscription-based journals (Blankstein & Wolff-Eisenberg, 2019; Niles et al., 2020). The closer details for how this has become shaped over time varies between research disciplines as the selection of viable outlets and mechanisms for funding of author-side fees varies. Journals within the social sciences have been heavily affected by the consolidation driven by big commercial publishers, where the share of articles published by the 5 largest publishers in social science fields was between around 5% and 15% in the 1970s to between around 50% and 70% in 2013 (Larivière et al., 2015) giving such publishers a lot of power to shape the international landscape.

OA journals

The number of OA journals has increased a lot over the last two decades, both due to subscription journals converting to OA publishing and new journals being founded as OA from the start. OA publishing has essentially made it possible for anyone to start a journal and reach a global audience with very low risk and financial investment, whereas in the past paper printing and distribution required a completely different approach, usually requiring the involvement of a professional publisher. A relatively large divide has emerged since the 90s also in the OA publishing landscape between small independent publishers, typical in the SSH fields, of single journal not charging APC and large and often commercial publishers charging APCs (Björk et al., 2016). While the small publishers mainly rely on voluntary non-permanent work, the large publishers can provide their suite of journals the professional editorial and technical support, and thus have the advantage of being able to comply with the highest OA publishing standards. Only 2.8% of non-APC journals and 25.6% of APC journals included in

the DOAJ (Directory of Open Access Journals), for example, meet all the policy and technical criteria set by Plan S (Frantsvåg & Strømme, 2019).

The number of OA journals within the social sciences has kept on growing steadily over time, reaching a total of 3999 journals publishing 119583 articles in 2019, which accounted for 29% of all journals included in DOAJ (Crawford, 2020). What is characteristic of social science journals is that 84% of the journals and 74% of the total article volume is published in OA journals free for authors, while only 55% of journals and 27% of the article output in STEM and biomed are in journals free for authors (Crawford, 2020). A further breakdown by individual disciplines within the social sciences can be found in Table 1. In 2020 the Scopus bibliographic database included a total of 23 452 active journals of which 5 500 journals were OA journals, giving a share of 23,5% of all journals (Scopus, n.d.). Comparing this to the situation in 2015 when the share was approximately 17% (Erfanmanesh, 2017) indicates that OA journals have increased their relative share of all journals by slightly over 1% in recent years. The social sciences have a below average share of OA journals, with 12,4% being OA in 2015 (Erfanmanesh, 2017).

Table 1 - OA journals in social science disciplines (Data derived from Crawford 2020)

Field of Science (OECD)	Journals (N)	Fee (%)	No fee (%)	Articles 2019 (N)	Fee (%)	No fee (%)
5.1 Psychology	241	20 %	80 %	9943	49 %	51 %
5.2 Economics	926	26 %	74 %	25862	42 %	58 %
5.3 Education	961	19 %	81 %	31758	20 %	80 %
5.4 Sociology	640	13 %	88 %	21247	30 %	70 %
5.5 Law	441	8 %	92 %	10629	10 %	90 %
5.6 Political Science	380	10 %	90 %	9738	9 %	91 %
5.7 Media &	410	6 %	94 %	10406	9 %	91 %

Communications*

All social sciences	3999	16 %	84 %	119583	26 %	74 %
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*Including Library and information science.

Liu and Li (2018) performed a comparison of the characteristics of OA journals between the natural and social sciences using Web of Science data. While both research areas had seen dramatic growth in prevalence of OA journals since 2009, the natural sciences had many more OA journals among the top quartile of journal impact factors. Large disparities between the social sciences and natural sciences were also detected in the OA ratios across specific disciplines, countries, and publishing languages. These findings further strengthen the notion that disciplinary context and culture matters when considering OA across multiple disciplines.

Green OA

In many disciplines green OA, where authors self-archive manuscript versions of their published articles openly on the web, has become widespread practice and thus lessened the reliance on converting publishing models of the formal publication venues to achieve open access (Severin et al., 2020). The social sciences have not been slow in creating and taking into use various web services for facilitating a more open scholarly communication environment on the side of formal journal publishing. The social sciences were early to latch on to the possibility of using repositories for sharing scholarly manuscripts. The Social Science Research Network (SSRN) is a web repository founded in 1994 for researchers in the social sciences to distribute their unpublished and published article manuscripts.

Preprint is a term that is used when authors share manuscripts prior to them being submitted to a journal or during peer review, in some disciplines also known as working papers (Xie et al., 2021). This is a facet of OA that enables rapid information dissemination, in parallel with or instead of the formal processes of scholarly publishing, enabling early feedback from peers and the public. In many areas of science there has been a rapid growth in the popularity of posting preprints, and many new repositories have been set up to cater to this growth. Economics was one of the first disciplines to set up a preprint archive, RePec (Research Papers in Economics), based on a distributed network model in 1993 where as early as 1999 more than 60

interconnected archives offered over 13,000 downloadable papers (Karlsson & Krichel, 1999). In 2020 that number has grown to over 2,000 archives offering 844,850 downloadable working preprints, with a lot of other types of content hosted and indexed as well (EconPaper, n.d.).

Triggered by the purchase of SRRN by Elsevier in 2016, SocArxiv (<https://osf.io>) was launched in 2016 with the founder Philip Cohen stating that " ...there remains a need for a new general, open-access, open-source, paper server for the social sciences, one that encourages linking and sharing data and code, that serves its research to an open metadata system, and that provides the foundation for a post-publication review system" (Cohen, 2016). In a recent survey study by Soderberg et al. (2020) researchers within the social sciences reported the highest level of favourability towards preprints. The survey found that favourability was connected to career stage, where early-career researchers were more favourable to preprints than more senior ranks. Use of preprints, both made available by others as well as uploaded by oneself, were also among the highest for respondents in the social sciences. For assessing the credibility of preprints, the three highest rated factors were related to availability of links to data, materials, and analysis scripts. This is where a study providing a more detailed breakdown of the social sciences would be beneficial for enhancing our understanding of how the maturity and culture around open data practices vary between subjects in the social sciences.

For researchers preprints can carry benefits in getting work out early for feedback and impact, however, doing so might also have known or unknown consequences due to assessment practices around preprints that are still emerging and developing across the disciplines. While most journals allow posting of manuscripts as preprints prior to or after submission, not all do, so posting a preprint might limit publication outlet options down the line. Citation practices for preprints also vary, which might mean that the preprint will be cited rather than the potential formal publication which influences citation counts derived from indexes only counting citations to formal publications and their subsequent evaluation (Gao et al., 2020). Their relationship to research funder pre- and post-assessment of projects is also not self-evident, as well as if funders should explicitly encourage preprints like they increasingly do for final publication outputs. It is unlikely that preprints will be acknowledged in PRFS as the monitoring and filtering for preprint archives is not strict if even applied before posting, making it possible to manipulate publication counts.

From the perspective of research assessment, the key questions relate to the peer review status of the self-archived publications, as well as to their compliance with technical and policy requirements for OA. In most research assessment procedures, prepublication peer review is used as a delineation criterion between academic/scholarly publications and those intended for professional and general audiences (Pölonen, Engels et al., 2020). Most OA policies by research funders also concern only peer-reviewed publications, requiring that the self-archived version must be at least the author's accepted version of the manuscript. Preprints are by definition not peer-reviewed, so they are typically not taken into account as research outputs. Many OA policies also call for immediate OA of published research, which can be at odds with many publishers' self-archiving policies based on embargo times. Also the OA repositories, in which manuscripts are deposited and made openly available, differ considerably in terms of their ability to comply with OA policy and technical requirements, such as set by the Plan S.

Bibliometric and OA data

Tasks related to assessment often rely on bibliometric information when performed on a quantitative level, and there are some considerations for doing so when it relates to acknowledging OA. The first choice that has to be made is what information source is used to provide publication information, e.g. Web of Science, Scopus, CRIS-data, or Microsoft Academic since it has implications for what is included as a baseline (Martín-Martín et al., 2020; Pölonen, Laakso et al., 2020). Many OA journals have started in recent years which means that they have not had time to build up the publishing history required by some of these selective bibliographic databases to be included. Many OA journals are also scholar-driven without a professional publisher with no dedicated resources to manage applications and technical requirements. Many OA journals are also published in non-English languages which might put them at a disadvantage for being included since some of the most popular databases have been found to be biased in favour of including English-language content (Mongeon & Paul-Hus, 2015).

The second choice relates to what information is used for identifying OA publications among the chosen publication population. It can be based on the publication channel of published works (checking for inclusion in e.g. DOAJ, Bielefeld OA journal list, Sherpa/Romeo self-archiving policy database), article-level verified web-availability (e.g. Unpaywall, Google Scholar), or self-reporting/validation as is often the case with CRIS-data.

Figure 1 shows what share of publications recorded in CRIS data from Finnish universities are represented in journals indexed in three different international databases (Scopus, WoS, and DOAJ). This data includes all types of peer-reviewed publications, including journal, conference and book articles, monographs and edited volumes. This demonstrates the differences between the sub-fields of social sciences in the degree to which they are covered by international bibliometric databases (WoS and Scopus), as well as the OA journal article publishing in DOAJ indexed journals across disciplines where the social sciences are again among the lowest. Figure 1 also demonstrates how large an effect the choice of information source can have on coverage of research output from different fields. Limiting assessment or monitoring only to articles in WoS, Scopus or DOAJ indexed journals seriously undervalues the diversity of research output in most social science fields.

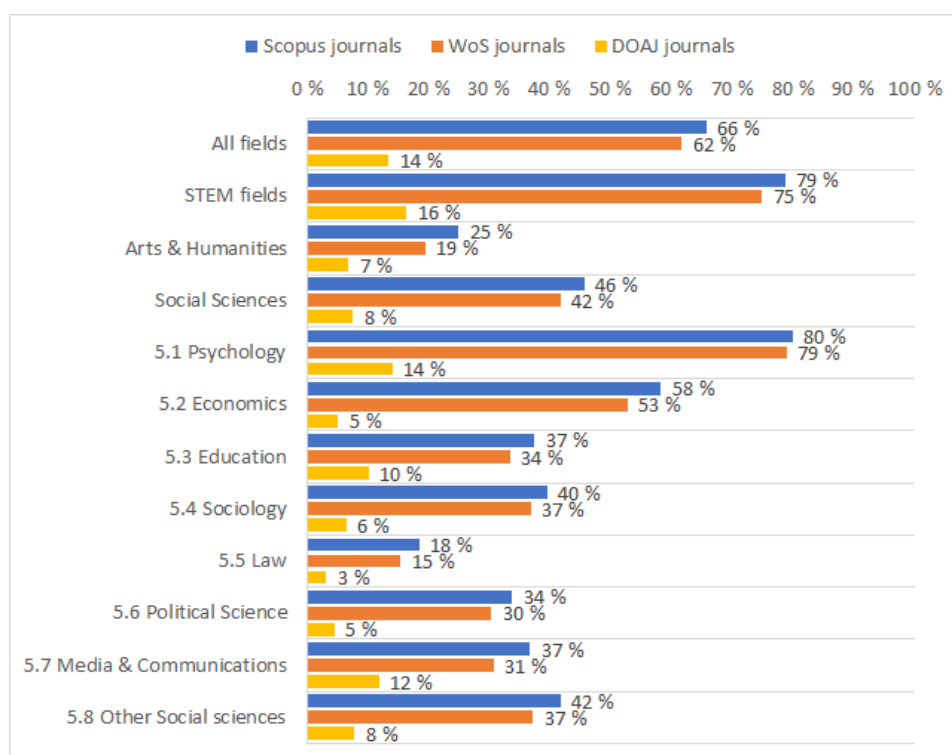


Figure 1 - Coverage of the peer-reviewed output of Finnish universities 2015-2018 in journals indexed in Web of Science, Scopus and DOAJ.

The differences between fields in representation in the journals indexed in Web of Science, Scopus and DOAJ are partly explained by the differences in importance of book publishing and national/regional journals (Engels et al., 2018; Kulczycki et al., 2020). Analysing OA comprehensively is difficult because it is challenging to cover publications in books and local

journals, and in addition to identify which outputs are OA. In the Finnish national VIRTAs database OA identification is based on self-reports by researchers and validation by the data collection personnel. This data shows that OA is much less common in the case of book publications than journal articles and conference articles. Differences in OA levels may also exist between outputs published in English and other languages (Pölonen, Laakso et al., 2020). Further considerations from a bibliometric and assessment perspective is the challenge in effectively differentiating (but still recording exact observations) between the OA status of a complete journal or book publisher, and OA status of individual articles and books (or even chapters). There is also the issue of licencing, multiple OA versions being available (and their prioritisation), temporal considerations (when something was made OA), and potential problems with persistent access to copies once made OA.

4. Considerations for social sciences

The most visible, vocal, and impactful advances for OA have been made in the area of journal publishing, and in particular concerning international journal publishers. What is often held as one of the first formal pushes for more OA is the Budapest Open Access Initiative (BOAI) from 2002 (<https://www.budapestopenaccessinitiative.org>) where the focus was solely on increasing openness in the journal publishing landscape. International initiatives like OA2020, where national consortia and libraries are driving collective action for change, are also focused on pushing change among large journal publishers. As such most OA-related science policy has either implicitly or explicitly excluded scholarly books from their scope, i.e. monographs and edited volumes, that are core to communicating research particularly within the social sciences and humanities (Giménez-Toledo, 2020). In recent years there have been many projects, studies, and practical initiatives aimed at a better understanding of how best to support OA book publishing (Hill, 2020; Maryl et al., 2020), and new financial models for consortia have been launched to enable publishing without author-facing publishing fees (e.g. Opening the Future, n.d.).

A lot of the challenge in assessing OA aspects of publications in the social sciences on a bibliometric level relate to the overall deficiencies in indexing coverage across the disciplines. Den Hertog et al. (2014) provide a thorough review of scholarly publication patterns in the social sciences and their relationship with research assessment using Dutch CRIS data as an

example. The report demonstrates that the social sciences are the most diverse category of outputs when it comes to publication formats, which therefore requires many different OA solutions to be provided to cater to the needs of the disciplines. The importance of retaining and catering to this diversity when OA solutions are developed is also shared by Maryl et al. (2020) who thoroughly review the needs and current projects and developments that are running for creating an inclusive scholarly communication infrastructure for social sciences and humanities. As such the most vocal and visible OA developments with international journal publishers only solves a small part of enabling OA for the social sciences.

As long as chapters in books and monographs, articles in locally or regionally oriented journals, and publications in languages other than English are not fully integrated into the OA landscape, using OA as an assessment criterion risks marginalizing the SSH fields and researchers. In the social sciences, research published in peer-reviewed book chapters and monographs can be as important as research published in journal articles. Therefore it is important to secure OA to book publications, yet it is known that a much smaller share of book publications is OA and the cost of OA can be larger due to continued importance and market of print editions. It also seems that researchers choosing to communicate in book format are also more oriented toward locally relevant research (Kulczycki & Korytkowski, 2020). On the other hand, it is also known that small independent publishers of SSH journals, often publishing in the national languages, may lack resources to meet demanding OA requirements (Late et al., 2020). This means that social science researchers focusing on locally relevant research, and publishing in languages other than English, may be disadvantaged - because they have larger difficulties in finding high-quality OA outlets - compared to internationally oriented journal authors. Unless due care is taken to secure a sustainable funding for OA of local scholarly publishers, OA criteria may endanger the national landscape of scholarly journals and book publishers, which are rarely APC based, and consequently the very foundation for multilingual scholarly communication (Kulczycki et al., 2020; Penier et al., 2020).

Even though only part of the total scholarly publication output of the social sciences is in journals, a real success story for the social sciences and OA are journal portals that provide the technical infrastructure for no or a very low cost to participating journals. Such portals are often organised at the national or regional level. Examples of such portals include Scielo, Redalyc, Erduit, Revues, Hrcak, J-Stage and Journal.fi. Björk (2017) identified 21 such journal portals publishing over 6000 journals combined, most immediate OA and with no or very low APCs,

with indication that most are in the social sciences, published by universities or scholarly societies. These are often nationally oriented journals that have a strong presence in the social sciences. They are often published in other languages than English, which also speaks for their more intimate potential for societal relevance. Journals like this are often scholar-run with minimal dedicated professional staff, and involvement in such activities by scholars would be good to acknowledge so that they gain career merit and remain attractive engagements for busy scholars.

When using OA as an assessment criterion, it is also important to take care of equality between individual researchers. The problem is that OA via golden, hybrid or green route may require a considerable amount of resources to pay APCs and know-how to self-archive the required versions of the manuscripts in appropriate repositories. Countries, institutions and funders differ considerably in the policies, resources and services they provide for researchers to promote OA. There can also be differences between fields in the availability of resources to pay for the OA costs. If only OA articles and books are taken into account, or if OA share of publication is considered in the assessment, researchers with background in less OA-policy oriented and resourceful countries and institutions - notably from the global south - may be put in disadvantage compared to researchers, who earlier in their career have been better placed to publish OA through channels that require author-side fees.

For OA the beginning of institutional and science policy involvement revolved around sticks rather than carrots, with mandates being a common mechanism to facilitate uptake. Depending on the finer details and level of strictness of the mandates (Vincent-Lamarre et al., 2016) they can even come to exclude where researchers can publish their works, which creates an interesting clash where the article-based push for OA, from e.g. research funders, meets the world of still dominantly journal-venue based evaluation that many higher education institutions adhere to (McKiernan et al., 2019). Research has shown that actual compliance with funder mandates varies a lot (Larivière & Sugimoto, 2018) where research funded by the National Institute of Health in the United States had the highest compliance rate among observed articles (around 90%), while research funded by the Social Sciences and Humanities Research Council of Canada had the lowest (23%). While a research funder within the social sciences came in last place, the study found that the funder was the main influencer of OA compliance rate (e.g. what kind of policy they have, and what kind of support is potentially given), and research discipline only played a secondary role in explaining compliance.

Potential systemic effect of using OA criteria may relate to number, quality and costs of publishing. Especially the largest OA publishers provide faster but less selective editorial and peer review procedure (this model was introduced especially by PLOS One). Whereas traditional publishers pay attention in peer review to solidity, originality and scientific importance of the published research, many OA publishers focus on technical solidity. There is a possibility that this publishing model, combined with APC payments, promotes quantity at the expense of quality (Crosetto, 2021). It seems that the quantity of OA publishing is growing fast especially in APC based journals of the largest commercial OA publishers. There has been a lot of discussion about the publish or perish culture in the case of traditional subscription based and impact factor-driven journal publishing, however, due attention needs to be paid to issues of research quality and publishing costs also in case of OA publishing.

5. Conclusions

Schaffner (1994) lists the following main functions of scholarly journals: Building a collective knowledge base, communicating information, validating the quality of research, distributing rewards, and building scientific communities. Even though these functions were written over 25 years ago without reflecting against the notion of OA, one could easily argue that OA has the capacity to enhance them all by not putting up barriers for accessing and flexibly utilising research outputs. Nevertheless, OA is still not the dominant way to publish scholarly content, which means that the landscape will continue to shift for many years to come. While the landscape keeps changing, institutions and individuals have to make decisions in the current, while also considering the long-term impacts of their decisions. As this chapter has outlined that the differences between research disciplines are large when it comes to how OA has been integrated and adopted into them, there are a lot of different stakeholders involved in shaping OA development based on their own agendas and perspectives, and questions concerning OA also relate to career stages and how openness plays into personal choices for publishing and disseminating one's work.

The connection between OA and assessment is complicated, evaluation happens at various levels whenever publications are considered. Some aspects of OA can bridge into admin tasks for faculty, like fulfilling the requirements for an OA policy by self-archiving. Other aspects relate to personal decisions about where to submit one's work for researchers, and here the

outcome depends on if there are attractive and practically viable alternatives available in terms of publication outlets. The situation regarding highly ranked OA journals and publishers in the social sciences is weaker than in the natural sciences, however, the social sciences have had early and strong alternative channels to distribute manuscripts OA in parallel to formal journal publishing which reduces the reliance on transforming the journal landscape to enable open scholarly communication.

Through the review of earlier studies covered in section 2, in comparison to other disciplines the social sciences have been among the slowest in the uptake of OA journal publishing, at least as perceived through the eyes of bibliometric databases that are also commonly used for research evaluation. Though it is impossible to predict the future in such a turbulent environment that scholarly publishing has become, a projection based on past trajectories of various OA types pegs that 44% of journal articles will be available OA in some form in 2025 (Piwowar et al., 2018). Unfortunately, this estimate does not contain a disciplinary breakdown of journals or articles, however, the upward trend for all types of OA is the likely outcome within the near future for the social sciences. Since the social sciences are utilizing green OA to make up for the lack of, in particular highly ranked, OA journals it is important that assessments would take a diverse view on OA mechanisms and definitions.

Research is very much an international arena, especially in the era of digital distribution, and the key parts that make up the whole consist of local policies and action. For OA these local and national policies have been developing unevenly from an international perspective, however, Europe is currently building towards increasing collective action internally and most strongly pushing for full OA both through research libraries and research funders. How this and other OA initiatives around the world will shape scholarly communication in the social sciences remains to be seen, but what is certain is that this current state of transition will continue for years to come and research assessment should take this into consideration.

To summarize, there are different approaches to taking OA into account in assessment. One approach is to use OA as a delineating factor, thereby including only OA publications in the assessment and excluding closed publications from consideration. Another approach is to include all publications in the assessment and to differentiate OA from closed publications, thereby making it possible for example to value OA and closed publications differently or to calculate the share of OA publications. There are, however, several differences and options in

defining OA according to type (more on this in the next section), various other dimensions (e.g. cost, immediacy, version, licenses and copyrights), and technical standards (long-term preservation, persistent identifiers).

Implications for research assessment

How to reconcile the seemingly conflicting demands of quality and OA in assessment? It is important, first, to follow the international responsible assessment guidelines, such as the DORA declaration. In the case of hiring, promotion and funding decisions regarding individual researchers, experts in the field should assess the quality of research based on the contents rather than the journal or publisher or - it is important to add - open availability of publications. Following the Hong Kong Principles, OA should be considered as a part of research assessment, and researchers should also be rewarded for open science practices, including OA. Nevertheless, due attention needs to be paid in the assessment to a clear definition of OA, limitations of the methods and data sources for analysing OA, as well as equality of opportunities for publishing OA. When it comes to creating a research culture that promotes research quality, it is important to recognize that demanding peer review and OA both contribute to the quality of research - solidity, originality, scholarly relevance and practical utility (Gulbrandsen, 2000) - in a positive way. Therefore, incentives should be aimed at encouraging researchers and institutions to publish in journals and book publishers that have a reputation among researchers for strong editorial and peer review standards and offer OA options according to best policy and technical requirements and support sustainable development of OA publishing costs. In both qualitative and quantitative assessments, it is important to take into consideration the diversity of research outputs and missions in the social sciences.

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