

Open access to scholarly communications: advantages, policy and advocacy¹

Ariadne Chloe Furnival²

ABSTRACT

The Open Access (OA) movement regards OA modes of disseminating research as the unequivocal future of scholarly communication. Proponents of the open access movement itself have, over the last ten years, carried out systematic research to show how OA can tangibly benefit researchers, institutions and society at large. Even so, the number of research papers being uploaded to OA institutional repositories remains relatively low, frequently based on concerns which often contradict the facts. Policies for OA have been introduced to encourage author uptake, and these are also discussed here. Briefly delineating aspects of these phenomena, this paper will then move on to outline and discuss advocacy for OA in organisations, and whether this should be “downstream”, in the form of informational campaigns, or “upstream”, in the form of top-down change management. This paper seeks to make a contribution to these issues in the OA sphere, by bringing into the debate strands from the literature of the sociology of science and management science that will hopefully elucidate aspects of author reactions to OA, and the perceived changes that its adoption gives rise to.

Introduction

Ever since the enshrining of the concept of Open Access (hereafter, “OA”) in the declarations like those of the Budapest OA Initiative (2002), the Bethesda Statement on Open Access Publishing (2003) and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003) – famously referred to as the “3 B’s” by Peter Suber – , there has been a veritable proliferation of projects worldwide promoting OA as the future mode of scholarly communication.

Over the years, a substantial number of OA projects have successfully promoted the setting up and support of institutional or discipline-based repositories into which researchers are encouraged to deposit their pre- and/or post-prints (“green OA”). Among many such projects we can mention the EC’s DRIVER and OpenAIRE infrastructures, the Irish Rian.ie research repository, the DEPOT in the UK, the EU-funded NECOBELAC project, the Australian government’s ARROW project, SHERPA and the Repository Support Project, both based at the Centre for Research Communications (CRC) at the University of Nottingham.³ Other projects have

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² Open Access Adviser (Europe), Centre for Research Communications, University of Nottingham, United Kingdom.

³ DRIVER: <http://www.driver-repository.eu/>; OpenAIRE: <http://www.openaire.eu/>; Rian: <http://rian.ie/>; The Depot: <http://depot.edina.ac.uk/>; NECOBELAC: <http://www.necobelac.eu/en/index.php>; ARROW.

concentrated on promoting alternative business models of publishing, including fully-fledged OA journals (“gold OA”)⁴ or “hybrid, author-side payment” models.

Latterly, proponents of OA are increasingly recognising the need to tackle the less technical but equally formidable work of OA advocacy. It is by now well-recognised that the uptake of Open Access (OA) dissemination options for research outputs and the use of OA repositories require, above all, a change in the behaviour of researchers from the scientific community, in conjunction with supportive and normative institutional procedures in place, e.g. OA mandates. The set of activities that have as their objective the promotion of OA modes of dissemination and the encouragement of researchers and other relevant stakeholders to incorporate such modes into their existing workflows, is usually denominated “advocacy”. OA advocacy work ultimately aims for a more seamless embedding of OA dissemination practices into existing academic workflows, and so it is work that also entails recruiting the support of university research managers and librarians. Hence, more recently, OA research projects have focussed on aspects pertaining to, *inter alia*, the economics of OA publishing, OA policies, research funder OA mandates and author attitudes to OA (see, for example, Houghton *et al.*, 2009; Swan, 2006; Nicholas *et al.*, 2005; Swan & Brown, 2005; Antelman, 2004).

Despite this veritable proliferation of research on, and advocacy of, open access, many institutional and subject repositories remain disappointingly sparsely populated with full-text publications, be they pre- or post-prints. The question remains as to why this should be. Drawing on strands from the substantial body of OA literature and commentary, together with other relevant threads from the literatures of the sociology of science and behaviour theory, this paper will attempt to begin to tackle this question.

1.The advantages of OA

1.1 Author advantages: The effect of Open Access on citations

Academic researchers work to the dictum “publish or perish” and they want to know that their published research has had a positive impact on their peer community for the furthering of research in their respective fields. Article impact – that is, the number of times an article is cited – is of great interest to publishing academic researchers, chiefly because it is regarded as being a measure of the “impact factor” (IF) of a given piece of research. The term was coined by Eugene Garfield of the ISI in 1955, to refer to the formulation of a citation index that would “evaluate the significance of a particular work and its impact on the literature and thinking of the period” (Garfield, 1955, p.469). Today, the IF is used to rank journals and evaluate and rank institutions and their academics, despite Garfield’s warnings *against* using the IF as a surrogate measure of research *quality*.

Australian Research Repositories. <http://search.arrow.edu.au/>; CRC: <http://crc.nottingham.ac.uk/>; RSP: <http://www.rsp.ac.uk/>

⁴ For more on the “Gold” and “Green” paths to OA, see Harnard *et al.* (2004). For a list of OA Journals, see the Directory of Open Access Journals (DOAJ) at: <http://www.doaj.org/doaj?func=loadTempl&templ=080423>.

But proponents of OA have researched the positive effect of OA on the number of citations of articles, which has given rise to the concept of the “Open Access Citation Advantage” – OACA. Problematical aspects of the IF notwithstanding, it still has currency and even kudos in today’s global scholarly communication system, which is why the OACA is used as one convincing argument, among others, to promote OA amongst researchers. This positive effect of OA on citations of articles is not hypothetical wishful thinking: it has been analysed, proven and reported, as the wealth of literature on the subject testifies. In 2001, Lawrence published (in *Nature*) one of the first studies on the OACA using original data comparing publicly available “online” articles (now taken to be synonymous with OA articles) with offline articles in computer science and related disciplines between 1989 and 2000. The results showed that “the mean number of citations to offline articles is 2.74, and the mean number of citations to online articles is 7.03, an increase of 157%” (Lawrence, 2001).

There has been enough continued interest in the OACA for Hitchcock (2010) to put together a bibliography of OA citation studies, and for Swan (2010) to review recent studies and results in the area. The latter reviewed 37 studies that have been carried out in recent years to compare OA with non-OA article citation impact in different academic disciplines, and only four studies demonstrated that there was no OACA (and one study reported that the OACA was still unknown). Overall, the OACA would be around twofold. Antelman’s study (2004) found that the relative increase in citations for OA articles was of 45% in philosophy, 51% in electrical and electronic engineering, 86% in political science and 91% in mathematics. Again, Hajjem et al.’s (2005) results reveal for 10 disciplines over 10 years that the OACA can be verified: for 1 citation there was a 16% OA advantage, for 4-7 citations a 22% OACA, and for 16+ citations, a 10% OA citation advantage.

Some of these studies (in astronomy, for example) also demonstrated that an OA boost to citation was obtained when articles were deposited to arXiv⁵ simultaneously to submission to a high prestige journal, with one study showing that “Higher-impact journal articles not posted to arXiv are cited less often than those from lower-impact journals posted to arXiv” (Swan, 2010, p.5). Although on this point, it is possible that because lower impact journals may not be as widely available to authors through institutional subscriptions, they will be more likely to have a “greater relative research impact” when made accessible through OA (Antelman, 2004, p.374). Even so, this is evidence of what Swan refers to as the “general OA advantage”, whereby articles that are citable become available, through OA, “to audiences that had not had access to them before” (2010, p.2).

The other main elements of the “OA advantage” that contribute to the OACA and that Swan (2010, p.2-3) summarises from the extensive literature are the “early advantage” by which the sooner articles are made openly accessible, the sooner their citation advantage will be evident. The “selection bias”, by which authors will prioritise their higher quality articles for OA, is related to the “quality advantage”, because these higher quality articles will be, in turn, more citable.

⁵ arXiv is one of the most well-known and prestigious subject-based repositories to date, containing 621,695 e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics.

In sum, there exists substantial evidence to prove that there is, indeed, an OACA. Because citation counts and the IF is still held in esteem by a substantial number of constituents in the scientific community, the OACA comprises a strong argument in favour of OA, be it through OA publishing or deposition in repositories. Even so, we should be wary of those who argue that if there is no discernible OACA, then OA itself has no value. OA is a growing tendency because it is seen as fair to make the results of research openly available in society: the OACA is just one advantage of OA among others.

1.2 Institutional advantages of OA

Other advantages of OA are to increase the visibility of a given institution's research output. This is evidently the case for "green OA", namely, versions of articles self-archived in academic institutional repositories (IRs). As Swann and Carr observe (2008):

Just about every institution with a repository cites this as a reason for having set it up according to our own small survey of European repositories (unpublished). Certainly, the repository is the ideal vehicle for making the work of the institution visible. Relying on pages on the institution's website is not satisfactory.

With the web ranking of universities worldwide increasingly becoming the accepted measure of a university's visibility and potential impact (e.g. see the G-Factor International University Ranking⁶ and the Webometrics Project⁷), traffic to a university's IR to download papers will play an increasingly significant role in producing such measures. This author heard a Chief Information Officer of a major university in the United Kingdom allege that there has been an explicit integration of his university's IR into the marketing of their postgraduate programmes: prospective postgraduate students can assess the type of research and related outputs being produced by potential supervisors in their decision making process.⁸

Related to the marketing role of an IR is its use for generating indicators of research output and productivity, used in many universities worldwide in research assessment exercises, for example, and to aid decision making in professional promotion procedures for members of academic staff.

It should not be forgotten that an OA repository also provides the basic services of storage and preservation to the host institution (Lynch, cited in Davis and Connolly, 2007), where preservation means:

the act of physically and intellectually protecting and technically stabilizing the transmission of the content and context of electronic records across space and time, in order to produce copies of those records that people can reasonably judge to be authentic (Wilczek & Glick in Hitchcock et al., 2007).

⁶ <http://universitymetrics.com/g-factor>

⁷ http://www.webometrics.info/about_rank.html

⁸ Heard in a talk at the Liber Conference, Aarhus, June-July, 2010.

Preservation in itself implies a whole set of other services such as format migration, back-ups and disaster recovery, security, preservation strategy, technology preservation and records management. In an electronic world, preservation issues are not trivial, given the fact that many university libraries find themselves having to negotiate with commercial publishers to guarantee archival access to back issues of electronic journals they subscribe to but for which at a later date, they may need to cancel the subscription (Watson, 2005). Copies of published papers available in a worldwide network of IRs will ameliorate the risk⁹ inherent to such scenarios.

2. The reality of Institutional Repositories (IRs)

Despite concerted and integrated efforts in repository implementation and promotion in universities worldwide, there exists a general consensus in the community researching OA that repositories are much emptier than had been anticipated. As Bjork *et al.* (2008) and Hajjem *et al.* (2005) note, only about 15% of the 2.5 million articles published annually worldwide are being self-archived in repositories by their authors. In 2007, Davis and Connolly observed that despite great institutional investment, Cornell University's DSpace Repository was being considerably under-used by Cornell's faculty members, affirming that: "Although a university-wide structure exists, much of it remains in skeletal form, with many collections empty or meagerly populated.(...) There is little evidence to suggest that individual faculty are making significant contributions of regular scholarly output to the repository."

In a similar vein, recounting the experience of implementing and embedding the IR into the institutional culture at the University of Minho in Portugal, Ferreira *et al.* (2008) note that even though the IR was launched in 2003 accompanied by an integrated advocacy programme (which included a financial incentive for the department of the depositing author):

By the end of 2004, the number of documents in the repository reached about 630. It was felt that in spite of the various calls for deposit, the calls were not producing the expected results. The number of self-archived documents was still remarkably low. Of the 630 documents in the repository, only a mere 128 were archived by the authors themselves.

On the other hand, there has been a steady growth in the number of IRs being set up worldwide. The directory of OA repositories, OpenDOAR, shows that the number of repositories (which includes digital libraries) has almost doubled between 2005 and 2010 (OpenDOAR, 2010).

Given that the much-touted advantage of an IR is that of being a potential institutional marketing "shop window", this situation can be construed as grave, going

⁹ For example, negotiations may be worth little if the publisher later goes out of business, as was mentioned by some librarians interviewed for the JISC survey..(in Watson, 2008, p.203).

beyond mere speculation of researcher disinterest in self-archiving in the IR. As Swan and Carr (2008:32) emphasise:

Except for a small number of institutions around the world that have big, growing repositories containing current research articles (rather than just, say, theses, grey literature or legacy literature from the past) most repositories are to all practical purposes empty. They are not only *not* enhancing their institution's online visibility, they are also actively projecting a very poor image of their institutions to the world. The shop window is empty.

3. Possible reasons for author resistance

As noted above, the fact that only around 15% of all journal articles written are accessible in some form of OA channel seems to be paradoxical in the light of research that has ascertained that “the vast majority” of researchers said that they would “willingly” make copies of their published articles available in OA repositories (Swan & Brown, 2004; Swan, 2006). It is interesting to note that authors who are already “OA authors” rank their support for the basic principle of opening up access to published research worldwide as their main reason to favour OA – knowledge is seen as a “public good”; and secondly, they believe OA journals to have faster publishing times; they then give wider readership and greater citation impact as the last reasons to support OA (Swan & Brown, 2004).

But other researchers also have many reasonable justifications for their wariness regarding OA and IRs. For example, an oft-cited and ostensibly reasonable motive given by researchers to explain their resistance to OA self-archiving in an IR is that it might infringe publishers' copyright. However, there now exist authoritative databases to assist authors – in a few simple steps – in checking copyright agreements, RoMEO¹⁰ being the most complete and up-to-date of these. Around 90% of all journals formally endorse some sort of OA deposition, many of these without a period of embargo or fee (RoMEO, 2010). Other common concerns expressed by researchers that doubt OA (concerns all refuted by the facts) are that: OA by-passes the peer-review process and so will open the door to low quality publishing; that it will end journal publishing; that deposition in a repository will be time-consuming and facilitate plagiarism and that authors will be obliged to give intellectual property rights to their university (King et al., 2006; Pinfield, 2004). There are websites that respond, based on substantiated research, to such reasons given by researchers not to deposit in their university's IR or publish in OA journals.¹¹ However, many of these “fears” have rightly been shown to be unfounded, in the plethora of reputable and well-researched reports and websites on OA.¹²

4. Scientific community culture of the Reward System in science

One formidable barrier to greater uptake of OA and deposition in IRs which is pervasive in the academic community is the perception of OA content as being of

¹⁰ RoMEO: <http://www.sherpa.ac.uk/romeo/>

¹¹ For example, see <http://www.sherpa.ac.uk/documents/15concerns.html>.

lower quality when compared to “toll-access” (i.e. paid) journal content, (van Westrienen & Lynch, 2005). This points to the persistence of the more insidious and equivocal belief that OA literature is not peer-reviewed literature: as many researchers in the OA fields have emphasised, OA publishing should not be equated with author self-promotion or “vanity publishing”.

The importance of the peer-review process to scholars must be appreciated when arguing the case for OA. It is one of the linchpins of the reward system in academia, in turn based on norms that are the inculcated beliefs underlying scholarly communities. The sociologist Robert Merton was the first to define these prescriptive norms as being: universalism (that is, scholarly development should focus on the universal criteria of the object of study, and not on the particulars of the scholar making the claim, like reputation, nationality, institutional affiliation); “communism” (that any knowledge arising from the research endeavour should be made public, for the benefit of the whole scholarly community); disinterestedness (that the goal of the research endeavour is seeking out, and contribute to, universal scientific truth, with no personal gain or interest for the researchers involved); organised scepticism (which means that knowledge claims advanced by researchers will be scrutinised and tested, before entering the shared body of scientific knowledge) (Merton, 1979).

The peer-review process is based on the norms of communism and organised scepticism, in that the extrinsic reward for the researcher is derived from peer recognition through contribution to the common stock of knowledge. Although it seeks to be as objective and fair as possible, the literature of the sociology of science, as well as the press, is replete with examples of subjectivity in the peer-review process. Merton himself recognised that recognition of scientific work by peers is very often “skewed in favour of established scientists” (Merton, 1988, p.607), a pattern that he called “the Mathew effect”.¹³ Merton and his peers built a reputable research agenda in the Sociology of Science studying this such “accumulation of advantage” based on the social stratification in science. One obvious result of accumulated advantage of reputation is that the citations of the works of the reputable scientist will be substantially greater: figures of 0.3% of publishing scientists being cited more than 100 times in a given timespan (of approximately 20 years) compared to 2.7% being cited between 25 and 100 times, and around 58% being cited only once in the same period (Garfield in Merton, 1988, p.611-2).

Over the years, a concomitant “accumulated advantage” of certain journal titles has been established in the scholarly community through the application of the IF, so that scientists will favour certain titles above others because they know that they will be read and therefore cited more publishing in Journal A rather than Journal B (Gadd & Oppenheim, 2002). The IF of Journal A is secured and preserved by the perpetuation of this (rather circular) practice. The journal “brand” thus equates the mark of quality in the scholar’s perspective. As one mathematician interviewed by Davis and Connolly (2007) put it: Getting published in [a journal] conveys a stamp of quality. It has nothing to do with dissemination. Journals [also] convey a certain

¹³ From the New Testament, the Gospel according to Matthew (13: 12 and 25:29): ““For unto everyone that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath.”

status, something that the arXiv cannot do, at least not at present" (in Davis and Connolly, 2007).

Thus, the currency of the reward system in scholarly research is "public" recognition, in the sense of recognition of the ownership¹⁴ of the research by peers of a given area. Based on Beecher and Trowler's (2001) famous denomination of scientific disciplines as "tribes" operating within their "territories", Paasi (2005, p.773) observes that "peer recognition and freedom have by tradition been recognised as the primary forces in the economics of science, not money or security." And usually, it will be the prestigious journal titles of that area that researchers will choose as the most effective channel to obtain that recognition. In that sense, as one scientist makes clear (in Davis & Connolly, 2007), the repository will only be used if, "it is used by the rest of my community. If an institutional repository is not coming up regularly in a search, I would not put my papers there." This confirms the view that academics are highly attached to their discipline or subject and that "subject-based expertise and achievements constitute an important form of academic credibility" (Deem, 2010, p.39). Indeed, it has often been noted that academics and scholars usually have a stronger allegiance to their subject discipline – their "tribe" – than to their university.

It is because of this substantive independence that the scientific community has in determining where to publish, that leads some in the OA fields to reach the conclusion that the uptake of OA channels for research dissemination (in OA journals or repositories) will only come about through regulatory, policy action.

5. Policies to encourage the use of OA channels

Open Access (OA) policies can be located at some point on a "policy spectrum" that extends from broad statements of support for, and promotion of, OA, to more prescriptive research-funder "mandates", and finally, to particular and specific institutional policies that declare support for OA as a principle and encourage academics to publish in OA vehicles or deposit in the IR, but which can also set out criteria for the overall goals and day-to-day operation of OA Institutional Repositories (IRs).

In the first category, we can cite the various declarations and manifestos in support of OA that have been disseminated over the years. The first of these was the Budapest Open Access Initiative, which dates February, 2002, and which was closely followed by the Bethesda, Berlin, United Nations and Association of College & Research Libraries (ACRL) manifestos, in 2003 (see <http://www.soros.org/openaccess/initiatives.shtml> for a breakdown of these OA initiatives). These policy statements constitute forms of raising awareness within the academic community around the existence of OA paths as a new form of scholarly communication, at the same time that they lend official, international and institutional credibility to the OA movement. Although they are not policies to be implemented as

¹⁴ For as Merton (1988, p.620) notes, "(...) it is only a seeming paradox that, in science, one's private property is established by giving it substance away. For in a long-standing social reality, only when scientists have published their work and made it generally accessible, preferably in the public print of articles, monographs, and books that enter the archives, does it become legitimately established as more or less securely theirs.

such, their great value resides in their synthesis of the main arguments in favour of OA, thereby constituting an initial foundation for more contextually-specific OA policies.

The second category, consisting of research-funder mandates, constitute an important policy instrument: while a policy statement exhorts OA support and compliance, the mandate constitutes the policy's executive "arm". As such, these OA mandates will be taken to equate a given research funder's "OA policy". The mandates stipulate that researchers receiving funding from the funder should subsequently make their resulting research papers available via OA channels, either through publishing in OA journals or self-archiving in Institutional Repositories (IRs). Many examples of such research funder mandates are listed on the website of the JULIET database (<http://www.sherpa.ac.uk/juliet>)¹⁵. Research funder mandates will vary regarding what they stipulate, which could be archiving in a subject repository, or in an IR; that the research funder will cover costs for publication in an OA journal; or that the funder's terms of agreement with the researcher will automatically predate future contracts with publishers that restrict access, thereby overriding these (Sale *et al.*, 2010).

At the institutional level, there are both institutional OA mandates which equate a given institution's explicit OA policy, and also, for those institutions that possess an IR, there should exist a detailed IR policy, discussed further below. Institutional mandates encourage their academics to deposit refereed final drafts of papers in the IR or a subject-based repository. Importantly, Sale *et al.* (2010) argue that institutional mandates are more important than funder mandates, principally because not all research is funded, but all research is usually carried out in the context of a university or research institution. Moreover, IRs form an interoperable network of searchable databases, seamlessly connected from the point of view of the information-seeker.

Arguably, institutional mandates encouraging OA scholarly communication by their academic constituents can amount to a public pledge of support only, unless they are followed up by more tangible, executable action, such as high level institutional support and facilitation for the setting up of an IR. If this is executed, it will be crucial that those responsible for the IR produce the IR policy. This should cover both the overall mission and objective of the IR (the "policy statement"), as well as also detailing the more specific criteria to ensure that decision making procedures regarding the more routine operational aspects of the IR are in line with the overall IR Policy. For example, if the overall mission of the IR is to "Make freely available this University's research publications in full-text", then this would have to be translated into a more specific policy procedure that controls the type of content deposited in the IR, avoiding the populating of the IR with metadata only.¹⁶

¹⁵ See also: ROARMAP <http://www.eprints.org/openaccess/policysignup/>

¹⁶ See <http://www.rsp.ac.uk/repos/checklist4> for a useful IR policy checklist. The [OpenDOAR Policy Tool](#) lists a comprehensive set of options for IR policies, allowing an IR manager to pick and choose aspects of the policy, and then generate policy web pages and documents.

6. Institutional Self-archiving mandates

Evidence of a correlation between the existence of institutional self-archiving mandates and the growth in IR content is still patchy. This is probably because the implementation of mandates is still at an incipient stage. But institutional mandates for the deposition of e-theses and dissertations into institutional digital collections have existed for longer, and have usually proved to be effective (Davis and Connolly, 2007).

Sale (2006) and Harnard (2010) have noted that voluntary self-archiving does not usually manage to raise the deposition rate above a “baseline of 15%” of total institutional research output, but that mandates for self-archiving could perhaps, over time, raise that rate to, in the case of departmental mandates, 80-100%, and in the case of institution-wide mandates, around 80%. Sale observes that an institutional mandate will take at least three years to begin to be effective. Sale’s research therefore confirms what Swan (2006) reported from her survey of researchers, which showed that 95% of researchers would self-archive only if *required* to do so by their institutions, 81% willingly and 14% reluctantly. The prevalence of author reluctance for self-archiving (i.e. deposit in an IR) has, indeed, led to the proliferation of OA mandates being issued by many research-funding bodies¹⁷ (including, *inter alia*, the Wellcome Trust, National Institute of Health in the USA, the Medical Research Council in the UK, the European Research Council) and universities¹⁸ worldwide, including Harvard University, MIT, University of London, University of Bremen, *inter alia*).

At all levels, policy implementation needs to consider and make explicit the benefits and impacts of the OA policy on the various stakeholders involved. For this, a “stakeholder analysis” should be carried out, which would start by identifying the various stakeholder groups affected, incentives and disincentives for their complying with and supporting the policy, the resources that each group can mobilise that will affect the outcome of the policy implementation, and their position in relation to their support (or not) of the policy (CROSBY, 1991).

Mandates can be seen as the “strong arm” of OA policies, but the work of OA advocacy is still necessary in order to produce the more sustainable, cultural shift required for non-mandated OA uptake.

7. The concept of advocacy

In the common-sense use of the term in the English language, advocacy means to espouse, recommend and plead for a certain position, argument or group, usually acting on behalf of that group. A broader approach to advocacy regards it as a set of activities that will encompass networking, community development and lobbying. Advocacy participants seek to reframe issues, reconfigure current discourse,

¹⁷ See Juliet for a list of *research-funder* OA mandates: <http://www.sherpa.ac.uk/juliet/index.php>

¹⁸ See ROARMAP for a list of *institutional* OA mandates: <http://www.eprints.org/openaccess/policysignup/>

introduce new ideas, and in so doing, “attract attention and encourage action” (Keck and Sikkink, 1998, p. 217).

7.1 Advocacy messages to bring about changes in behaviour

On one level, advocacy activities can focus primarily on drawing attention to, explaining, clarifying and clearing up doubts about the new dissemination practices to be adopted by publishing researchers. Such advocacy initiatives are “downstream” (or “bottom-up”) in the sense that they target individuals on a cognitive level, regarding them above all, as rational decision-makers operating in a context in which they can freely and individually take decisions, almost as if in isolation from their working context. Information campaigns usually operate on this level.

However, as much research on health and environmental campaigns has identified, the mere provision of information to the target public is not necessarily enough to guarantee their engagement and identification with the issues divulged, even if they do seem to agree with the concepts communicated. That is, there is no identifiable linear cause-effect relation between communicating effectively a message, and inducing behavioural change in its receptor audience.

Verplanken and Wood (2006) maintain that “performance contexts and social structural factors that maintain habits” (*ibid*, 2006, p.91) must be considered in order to bring about behavioural change, and not a mere “mind change”. These authors point out that the effectiveness of individual-centred, informational campaigns is reduced even further when aimed at audiences who have “strong habits”, meaning automated and repeated habit performance, that are “cued” and rewarded by the environment which nurtures and encourages that habit. The individual is almost impervious to new information because it clashes with the expectations produced by the strong habit, and so new information would in turn, hamper the automated decision-making process. As the authors note:

These expectations lead to a kind of tunnel vision that is evident in the following: People with strong habits expect prior experiences to repeat, and as a result, they do not easily detect minor changes in the performance environment. They also search less extensively for information about behavioural alternatives and for information about the performance context itself. In addition, their search tends to be biased toward confirming the habitual option. (...) When the target behaviour is habitual, people’s intentions, desires, and judgments do not easily overcome the practiced response that is cued automatically by the environment.” (Verplanken & Wood, 2006, p. 92).

In the scenario evoked above, it is easy to visualise scientists and researchers – engrossed in their pressurised work routines and incentivated by the reward system in science – hardly noticing that they are being exhorted to change their publishing habits to OA and self-archiving in repositories, especially if their institutional environment is not providing them with the appropriate procedural cues and incentives to facilitate such a change.

7.2 Habit change and “upstream” advocacy activities

If the institutional environment and demands work to induce, facilitate and even “fossilise” certain habits and practices, then it is possible, claim Verplanken & Wood (2006) that changes in that environment – in the “habit performance context” - might also facilitate change in the established habit behaviour. In that sense, “upstream” advocacy will be more effective. This type of advocacy intervention focuses

(...) on the larger structural conditions in which people’s behaviours are embedded. Thus, upstream interventions may consist of economic incentives, legislation, or structural changes in the performance environment. These interventions aim to provide contexts and societal structures that promote and sustain desired behaviour (*ibid*, p.95-6).

The importance given to changing the context to bring about behavioural change was also noted by Beer et al. (1990) when analyzing organisational change. These authors noted that there is a fallacy underpinning many change programmes which is that knowledge and attitudes in individuals need to be changed first, which will lead to a change in behaviour which in turn, will bring about wider change. They note that reversing these assumptions will more likely encourage a change in behaviour: “The most effective way to change behavior is to put people into a new organizational context, which imposes new roles, responsibilities and relationships on them. This creates a situation that, in a sense, ‘forces’ new attitudes and behaviors on people” (Beer et al., 1990, p.159).

Again, the relevance of this scenario to advocacy in OA and repositories is evident: it has been heuristically observed that “information leaflets on their own don’t work, no matter how flashy they are”¹⁹. Advocacy work of the political networking and lobbying type – with the significant key players like university administrators, grant-awarding agency representatives, politicians – which aims to achieve more long-term and deep-seated structural changes institutionally and inter-institutionally, is increasingly regarded as the way forward in the OA publishing and repositories domain.

To finalise this section, we present Verplanken & Wood’s (2006, p.96) schematisation of downstream and upstream advocacy interventions in relation to their efficacy in changing weak and strong habits (Table 1). It could be argued that researcher-authors at the beginning of their careers have “weaker” publishing habits and will therefore be more “open” to downstream, campaign-type information interventions introducing new ideas, whereas more established researcher-authors have strong publishing habits in the “old mode”. So we can assert that there is a place for both type of advocacy strategies.

Table 1. Effective policy interventions to change weak versus strong habits

¹⁹ Paraphrase of personal communication with RSP staff member.

Behaviour to be changed	Interventions Downstream of the Behaviour	Interventions Upstream of the Behaviour
Weakly or not habitual	Information/education to: <ul style="list-style-type: none"> • increase self-efficacy • change beliefs/intentions • motivate self-control • form implementation intentions 	Education Economic incentives Legislation & regulation Environmental design Technology development Normative approaches
Strongly habitual	Downstream-plus-context-change	Economic incentives Legislation & regulation Environmental design Technology development Normative approaches

Source: Verplanken & Wood (2006)

7.3 From Downstream to Context-changing Upstream Advocacy

It is not being claimed here that target audiences are impervious to “downstream” advocacy initiatives, but that given the context in which researcher-authors work, and that the institutional *status quo* can constitute a formidable barrier to change in that it facilitates and even incentivises the continuation of old habits, such downstream initiatives on their own, despite being informative, will have limited impact. For Verplanken & Wood (2006), upstream advocacy programmes that have as their goal institutional context-changing actions will arguably be more efficacious in bringing about the desired “disruption” to strong and deep-seated publication habits, precisely because such programmes would seek to alter the institutional context “cues” that perpetuate old, or foster and support new, habit formation. Downstream advocacy initiatives still have a place to inform and motivate individuals, who can then also potentially become “champions” for the cause, but the ultimate aim is for such initiatives to be expanded, with the aid of key decision-makers, into broader, more long-term upstream initiatives.

8. Culture change in academia for OA?

The consensus in the literature on organisational “culture” is that it is, as Lundy and Cowling succinctly put it, “the way we do things around here” (in Martins & Terblanche, 2003). Organisational culture is made up of norms, values, philosophy,

feelings and routine behaviour (Hellriegel *et al.*, and Smit & Cronje in Martins & Terblanche, 2003). Change management interventions will therefore have to encompass these facets of culture, alongside the organizational structure, work processes, and IT/infrastructure (Worren *et al.*, 1999). Likewise, as also widely documented in the literature, stakeholder participation in the choice of change interventions is ideal, in order to guarantee that the required change take root (Saunders, 2005; Van Schoor, 2003).

Universities are evidently a particular form of organisation, and there are cultures within the overall university organisational culture, most obviously the academic-teaching culture alongside the administrative-managerial one (Deem, 2010).²⁰ Most relevant to the subject of OA is the fact that university researchers and lecturers still have a substantial amount of autonomy regarding the way they structure their work routines and their choices within that routine. In the United Kingdom in particular, this autonomy was complemented by a *laissez faire*, “gentlemanly” hands-off management approach (Deem, 1998) by university administrators towards their academic counterparts. However, the publication there of the Dearing Report in 1997 called for “better management” in UK universities, which in practice gave rise to a more managerialist approach being implemented within academic departments. Increased competition between universities (especially after the transformation of polytechnics into universities), to capture future fee-paying students and secure research grant awards, has ushered in the rise of performance-measuring managerialist approaches, such as, in the UK, the research evaluation exercise (RAE) and the research excellence framework (REF) to secure public credibility in higher education by presenting simple ranking-type measures.

Even so, it should be stressed that these new managerialist approaches still sit alongside the more traditional semi-autonomous departmental administrative units and practices. Deem (2010) observed that several of her research interviewees reiterated the pervasive belief that to “control” academics is akin to attempting to “herd cats”:

(...) trying to manage anything involving academics is like trying to herd cats ...It means that you've got this whole group of people who are all independent thinkers and will do things if they think it will suit them ...but you know, they won't do it just because you say so” (senior administrator, Pathside University²¹).

From this, it can be inferred that university academics may not warm to what they might regard as managerialist attempts to erode their autonomy, including in this category, mandates for OA self-archiving. As researchers in OA well know, the existence of a mandate does not guarantee compliance, and putting procedures in place to check for compliance (for grant-awarding bodies, for example) is extremely complex.

Academics’ “resistance” to OA self-archiving does not take the form of vociferous opposition to it; rather, it is the quiet continuation of previous, well-established publishing habits, and sometimes ignorance of OA objectives. Advocates of OA in academia need to regard such “resistance” as an opportunity to focus and refine

²¹ Fictitious name given by Deem (2010).

their arguments in favour of OA. That is, to see “resistance” in a positive light, even as a source of innovation for the change implementation being proposed. As Waddell and Sohal (1998, p.545) note:

Where resistance is at play, there is a need to examine more closely the problems that exist and consider more deeply the changes proposed. (...) (R)esistance also encourages the search for alternative methods and outcomes in order to synthesise the conflicting opinions that may exist. Thus resistance becomes a critical source of innovation in a change process as more possibilities are considered and evaluated.

9. Final considerations

The effective implementation of an OA policy – be it on an institutional, regional, national or international scale – will need to count on top-down political support as well as a bottom-up support from both author-researchers and information end-users. Examples of the former would be a research-funder issuing a mandate or a university producing an institutional mandate. The latter would include author self-archiving in IRs (“green” OA), authors opting to publish in OA journals (“gold” OA) instead of toll-access ones, researchers convincing their peers to go “open” and end-users using and citing OA and IR-deposited full-texts.

It is important to note that the implementation of an OA policy is not the end of a linear policy reform procedure, but will very often be the *beginning* of an interactive *process* with stakeholder groups, who very often become more engaged in policy reform at the implementation stage, simply because “The effects of change become more visible as implementation proceeds and there are likely to be more challenges to the original conception of the reform” (Thomas & Grindle, 1990, p.1166).

That is, those in charge of OA policy implementation should accept the fact early on that this is an on-going and dialogical process of culture change within their institution or country, which should not threaten the creative autonomy that is the lifeblood of the academic community.

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