Abstract:
Strategic journal publishing is a complex activity. Identifying appropriate publication outlets is a key component of a researcher’s publishing strategy. Considerations include a journal’s Field of Research (FoR) Code, impact data and Open Access options (mandatory for publications arising from funded research). To afford researchers more writing time but still enable strategic publishing, the Western Sydney University’s Library and Digital Humanities Research Group combined their expertise in publishing support resources, data manipulation and general purpose programming to develop Journal Finder. This toolkit organises existing information relating to journals and impact in ways that are relevant to the Australian situation and easily identifiable.
Introduction

Since its first appearance in 1932, 'publish or perish' (Wikipedia ‘Publish or Perish’ 2015) has become a well-established mandate for the majority of researchers around the globe. Even as this imperative might be giving way to 'be visible or vanish' in the new digital age (Doyle & Cuthill 2015), it remains a phrase that generally reflects the pressure and impetus for academics to regularly produce quality publications or ‘outputs’ as an index of scholarly rigour and research activity. This paper will examine this core activity within the context of creating a web-based dashboard, the purpose of which is to assist Western Sydney University academics to publish their research in quality outlets. This paper will not repeat the many legitimate debates and tensions surrounding the character, instrumentalism, politics and trajectory of contemporary academic workloads and performance measurement schemes. For the discussion that follows it is recognised that the 'quality' of a researcher's publication record is more critical to research reputation than the 'quantity' of outputs.

Irrespective of arguments over where you publish versus what you publish, it is a reasonable claim that personal, professional, institutional, national and international research reputation collectively inform employment, funding and collaborative opportunities. Not only does the prominence and recognition of one’s work impact possibilities for career and research advancement but it influences an institution’s broader standing within regional and international academic communities in often highly complex ways. As each institution labours for recognition in a profoundly competitive tertiary education market, the visibility of ‘world-class’ research and the ‘excellence’ associated with this is all but critical to the continued activity of many a school, institute and research group. Writing about Australia, Guthrie and Parker (2014, p. 101) note that “the value of education exports was AUD $14.8b in 2011-2012, making it one of the major industries in a country of only 22 million people … In 2011, overseas students enrolled in Australian higher education numbered 332,577 and comprised 27 per cent of overall enrolments (of 1,221,008)".

Importance of Quality Publications

There are a number of reasons for the continued emphasis on quality publication records. One is that high-profile publications draw attention both to academic authors and to their home institutions in terms of reaching other scholars who visit the same publication venues for leading-edge research. Indeed, “Publications permit a researcher to claim membership among a community of scholars who are contributing quite directly to the advancement of the discipline’s knowledge base. Even in private sector positions (e.g. think tanks) and government jobs (e.g. the Census Bureau) successful applicants must generally demonstrate research acumen" (Bartkowski, Deem & Ellison 2015: 101). A second reason is that rankings within local and international contexts, for better or worse, judge some journals superior to others based on their perceived value by discipline experts. This approach can at times become problematic, such as the controversial and deprecated yet still widely referenced 2010 Journal Ranking List released for the first Excellence in Research Australia scheme. Alternative peer review frameworks exist,
such as those offered by PLOS ONE, and PeerJ (and the authors acknowledge that there is an important shift away from rating whole journals and towards measuring individual author and article impact). But as “refereed journal papers continue to be regarded as the most highly valued academic publications, judgements about the quality of journals [are] an integral part of ... national research assessment exercises” (Northcott & Linacre 2010, p. 38). Peer review remains paramount alongside considerations of journal impact, dissemination options, funder mandates and publication speed (Bursi 2015; Gomes, Giovannoni, Guterrez-Hidalgo & Zimnovitch 2015; Happell & Cleary 2014). A third reason is that “very few manuscript submissions are accepted outright without any meaningful revisions. Top-tier journals are highly selective, so much so that around 80–90 percent of submissions are rejected outright” (Bartkowski, Deem and Ellison 2015, p. 110). Within this understanding, to be published in a high quality journal is seen as a clear marker of a specific kind of academic capital: that is, scholarly rigour and approval by one’s intellectual peers.

Research Reputation

O'Loughlin, MacPhail and Msetfi (2015) conducted a study to explore senior academics’ concepts of research reputation. The study concluded that: "An individual academic with a strong research reputation was perceived by all respondents as someone who was published in top tier publications, cited by many, awarded prestigious grant funding, involved in highly competitive research programmes and projects, attracted good quality research students, influenced and advanced knowledge and impacted on the overall field" (p. 811). Nature Publishing Group's Author Insights 2015 Survey of 22,000 researchers also found that the most important factors for choosing where to publish were a journal's reputation and whether it was perceived to be the best place to publish research, the relevance and consistency of journal content, the quality of peer review and a journal's impact factor. In contrast, researchers who do not work towards publishing in 'quality' journals, or who are baited to publish in faux (but exploitative) open access journals under an author-pays model, are perceived to drag down an institution's competitive standing. Research by Shen and Björk (2015) suggests that such researchers could misunderstand there to be an apparent scarcity of appropriate outlets in their field, be naive about the publication process, fail to undertake sufficient background research on invitations to publish in never-before-heard-of journals, or have a deliberate intent to fast-track a publication track record through unethical choices that circumvent conventional journal peer review protocols.

Half a century ago, this might have been different, where “a relatively small number of printed refereed journals, run by a handful of commercial publishing houses, communicated about 50 per cent of the global research findings and academic knowledge” (Guthrie, Parker & Dumay 2015, p. 4). The advent of online journals and open access publishing has certainly produced a richer ecosystem of publishing outlets, but it has created just as many traps for researchers anxious to boost their track records. Of special note is the recent practice whereby publishers flatter researchers via unsolicited emails extolling the virtues of their research and offer rapid publication for a ‘small’ fee. Only afterwards does the researcher discover no peer review actually occurred, the publication did not 'count' as a research
publication and they are unable to re-submit it to a reputable journal due to unyielding contracts (Guthrie Parker & Dumay 2015). A key need for any institution is to prevent unsuspecting researchers falling prey to predatory journals offering quick turnaround times, especially research students and early career researchers (recently graduated doctorates) eager to secure their first publication (Guthrie, Parker & Dumay 2015, p. 5). Strategic publishing, therefore, has become a meaningful approach not only for showcasing scholarly talent appropriately and combating what is known as ‘predatory’ open access publishing, but also for simultaneously addressing the mixed, sometimes contrasting professional and institutional demands surrounding the publication of research.

The Task of Journal Selection

Given these overlapping scholarly and university responsibilities, getting an academic article published is understandably not a problem-free or trivial exercise. One does not simply select a journal title which has the author’s field of research repeated in it (even as this naming practice has become a bulwark of predatory publishers creating new ‘international’ journals seemingly overnight). Instead, careful consideration must be made when identifying an appropriate journal for publication to ensure that, at the very least:

1. the journal is the best possible outlet that fits with the internal quality of the paper being submitted;
2. that the journal’s subject areas align with the writer’s own research fields as these relate to localised understandings (and here it is signalled that different national schemes often tag the same titles in quite distinct, sometimes peculiar fields, making some international journal advice sometimes incompatible with the Australian situation).
3. that the paper has a higher probability of acceptance with the selected journal (or relevant feedback to improve its resubmission) within the context of points one and two; and
4. that the journal is a bona-fide forum and therefore a ‘countable’ publication within those empirical frameworks that contribute to assessing institutional and academic performance.

This list is by no means exhaustive and there are websites (see for example Beall) dedicated to providing rule sets and search recipes for researchers to use when looking for a journal, authenticating its claims and avoiding publishing scams. In Australia these considerations additionally mean that any information, in order for it to be truly useful, must include a journal’s Australian Bureau of Statistics Field of Research (FoR) Code, a journal’s various impact factors which are spread across multiple datasets for noting quality of different kinds, and its open access status and archiving policies. This last requirement is increasingly important as open access is now formally requested for any publications arising from Australian government-funded research.
Open Access

Australia’s major research funders, the ARC (Australian Research Council, Australian Government 2015b) and the NHMRC (National Health & Medical Research Council, Australian Government 2015b) have both recently released similar Open Access policies requiring publications resulting from funded research to be made freely available within 12 months of publication.

At this stage, unlike the proposal in the United Kingdom where an article is not acceptable under its “Research Excellence Framework” if it is not open access (Higher Education Funding Council of England 2015), the ARC policy does not link compliance with participation in Australia’s regular evaluation of research quality. Therefore, as the largest funding body of humanities research in Australia, the ARC policy is significant for many Australian academics. It is expected therefore to have a notable impact on local academic research culture by attempting to shift focus away from publishers (and online platforms with price barriers such as subscription, licensing and pay-per-view fees) and towards local university-based electronic resources which are often undervalued and underused but which are nonetheless free for anyone to access.

There is no denying, therefore, that the ground is shifting worldwide in academic publishing, as more countries adopt open access mandates and as researchers take advantage of more interactive, and more immediate, styles of scholarly communication. A challenge for any Australian academic seeking publication is that open access policies differ from journal to journal, as do the implications for institutional libraries that want the option of archiving pre-print, publisher or post-print versions of an article. Yet the emphasis is on the researcher or his or her university to identify and understand all the necessary elements that go together in authorising the use of specific versions of academic work in certain contexts.

Understanding whether a selected journal’s open access policy aligns with specific institutional or funding body requirements is just one aspect to manage, however, in a constellation of obligations surrounding the publication of academic research.

Fields of Research

In Australia, the ARC releases a quality journal list every two or three years, and next to every publication title it has up to three numerical values. Each number represents a field of research (the aforementioned FoR) and identifies the disciplinary groups (via a two-digit code) or the individual fields (via four-digit code) that a journal is seen to belong to (at least until the next period of consultation). There are alternative methods to identifying which field a journal’s strengths might be aligned with, such as that suggested by Eugene Garfield (Garfield 1955), founder of the use of bibliometrics and scientometrics in research impact, but in Australia researchers do not have this option. This has resulted in a situation where noteworthy services provide important impact data on journals but often assign fields to publications in ways that conflict with the Australian context. Yet the only authoritative source in Australia, which is the spreadsheet of journals ‘counted’ by the ARC, lists more than
22,000 publications with no information on either a journal’s open access status or its archiving policies. Moreover, there is rarely an easy way to link this list with other relevant data into one easy-to-read overview. This journal list is incredibly unwieldy and quite opaque to the average researcher yet it contains information critical to making sure one is publishing in rather than out of their field of research.

Predictably, researchers have struggled to make a well-versed decision about where to publish due to the dispersal and difficult presentation of available information.

Research Impact

The journal list is just one of the key documents in Australia's semi-regular research evaluation exercise. Like most countries, the benchmarking of research in Australia has become one of the principal characteristics of modern academic life, where research output directly influences the distribution of funding to universities (Cleary, Usher & Jackson 2014). In Bloch et al, the probability of becoming a full professor increases dramatically for individuals who obtain funding, suggesting that being awarded a competitive research grant has its greatest impact at an early career stage (Bloch, Graversen and Pedersen (2014). The write “For the individual researcher, the receipt of a grant can influence both scientific production and career paths … The probability of obtaining a full professorship for grant recipients is almost double that for rejected participants, 16 per cent compared to 9 per cent. The probability of career advancement in general is about 9 percentage points higher for grant recipients. Qualitative interviews support these quantitative results by providing insights into how grants impact research careers, through heightened status, recognition, networking and other factors” (Bloch, Graversen & Pedersen, 2014, p.80).

Australian funding for research is largely derived from government sources. Institutionally, the annual Higher Education Research Data Collection (HERDC) returns a quantitative measure that provides a defined dollar amount per authenticated peer reviewed publication. Academically, individuals acquire project funding for research through the two major competitive government schemes run by the NHMRC and the ARC. Success rates for all ARC schemes have declined in recent years, down to just 18 per cent for ‘Discovery projects’ in the 2015 funding round (Australian Government: Australian Research Council 2015a). Likewise, the rate of successful NHMRC Project Grants has dropped from 23.4 per cent in 2010 to 14.9 per cent in 2014 (Australian Government: National Health & Medical Research Council 2014). Yet the rationale remains that “an increased reliance on competitive funding … [and] competitive financing mechanisms will funnel resources to those researchers and universities that are most qualified, with subsequent improvements in performance within both research and education” (Bloch, Graversen & Pedersen) 2014, p. 78).

With approximately 17,000 universities worldwide and increasingly limited funding scenarios, competition for the finest researchers in an area has become fierce if not occasionally outright ruthless (Steiner, Sundström & Sammalisto 2013). Being able to identify research strengths and in turn channel limited resources into research concentrations with proven track records is increasingly important in the upper-level
management of the university sector (Abramo & D’Angelo 2015). Approximately twenty countries presently utilise a quality research exercise to underwrite the distribution of government funding (Guthrie & Parker 2014; Hicks 2012). Results are openly available and frequently used by scholars, research students and selection committees to inform decisions on where to study, work or employ. As Guthrie, Parker and Dumay note, the “university ranking game affects the allocation of government funds, national prestige and the ability to attract the best students and faculty” (Guthrie, Parker & Dumay, 2015, p. 3). In addition to research assessment exercises, a surfeit of international rankings also exists, including the QS (Quacquarelli Symonds), the Times Higher Education, Academic Ranking of World Universities (also known as the Shanghai Ranking), SciMago Institutions ranking and CWTS Leiden rankings, which have emerged in recent decades. Prestige measures, including quality publications, inform many of these rankings although each has different criteria and sometimes a different focus (Abramo & D’Angelo 2015; Wilkinson 2015).

The Excellence in Research for Australia (ERA) is the Australian government’s quality research assessment exercise, with clear reputational rewards deployed through a 1 to 5 point categorisation system but an ambiguous monetary value. Select publications, Higher Degree Research (HDR) student completions, competitive grant income and esteem measures (such as being a member of a learned academy), peer review and citation analysis are the key components of this assessment, which involves a cluster of benchmarking and empirical procedures for national and international comparisons. The first ERA in 2010 generated a ranked journal list grading publications from A* to C. This list was created by discipline experts then amended following institutional consultation. Controversy, however, arose over the accuracy of the rankings, which became quite prescriptive in its deployment and uptake by the sector, given the subjective nature of peer review, and these alphabetical grades were later removed from the journal list for ERA 2012 (Vanclay 2011, Mazzarol & Soutar 2011). That said, the 2010 journal grades have been known still to operate as an informal reference point for assessing publication track records, and the 2010 spreadsheets continue to lurk online in many university websites.

The Journal Finder Service

For ERA 2015, the final journal list was not made publically available to researchers after consultation was completed on the draft list. As inclusion of articles in the ERA exercise is dependent on whether the journal in which they were published is on the list and is tagged in their relevant field of expertise, researchers were understandably concerned about its lack of availability and the absence of transparency over the final assignment of fields to titles.

In order to afford researchers greater clarity in aligning all kinds of impact data with the Australian setting and to ensure that any publishing choice remains a strategic one, staff from the Western Sydney University’s Library (Susan Robbins and Michael Gonzalez) and Digital Humanities Research Group (Paul Arthur and Jason Ensor) combined their expertise in publishing support resources, data manipulation and programming to develop a web service called Journal Finder. Centred around
helping researchers publish their work in relevant outlets through providing contextual information on how a journal counts towards a particular field, *Journal Finder* is squarely located within the Australian research environment and incorporates conventional and alternative impact metrics. Furthermore, it assists this research-oriented university to navigate through the growing wetlands of illegitimate open access journals that spring up almost every other week while also attempting to minimise pressures linked to the ‘publish or perish’ mantra and research commercialisation and income generation activities.

Assistance navigating the information available to inform publishing in quality outlets has long been a core service offered to researchers by Library staff at the Western Sydney University, as it is for most academic libraries internationally (Bruxvoort and Fruin, 2015). A chance meeting with a member of the Digital Humanities Research Group in early 2014 led to a collaboration that resulted in the development of *Journal Finder*, with two Library staff ultimately becoming members of the Group with involvement in subsequent digital innovation projects. Based on open standards, *Journal Finder* combines Library-subscribed and open resources to provide researchers with a user-friendly portal based uniquely around Australian FoR codes. Title lookup is not only by words from a journal’s name or wildcard search, but also via discipline cluster, discipline group and field of research. Scholars can also hear about possible publication outlets through database/Google searches, recommendations from colleagues or by perusing other articles’ reference lists and then search for them in *Journal Finder*. Comparison between journals is achieved using a ‘save’ feature that pins individual titles into a holding area for later review and comparison.

Technically, *Journal Finder* pairs the open source relational database management system MySQL (the database of choice for web applications like Drupal, Facebook, Flickr, Joomla, Twitter, WordPress, and YouTube) with the Hypertext Pre-processor (PHP) scripting language that is highly flexible for general-purpose software programming and web development. Functionally, a range of important datasets (discussed below) is aggregated and curated within *Journal Finder*, some via an application programming interface (or an API, which is a set of routines that enables two websites to share data) and some via data originally supplied by vendors as comma-separated tabularised spreadsheets. It has been designed to be easily updated and easily manipulated as the need arises.

Combined with the ARC Disciplinary Matrix that groups and hierarchically structures all research fields in Australia, the ERA journal list forms the backbone of the *Journal Finder* interface. It is available only via a login to Western Sydney University members, as per vendor policies and the ARC requirement that the quality journal list not be made publically available. Rank data from the Australian Business Deans Council journal quality list (used widely by business and other disciplines as a quality measure) is similarly incorporated into *Journal Finder* to “overcome the regional and discipline bias of international lists” (Australian Business Deans Council 2013). *Thomson Reuters* and *Scopus* journal impact data also enables journals to be ordered by raw impact figures, their rank within discipline area, and their quartile value in publication fields. Full *Scopus SNIP data*, updated annually, predicts the direction of a journal’s citation trends. In response to a request, the University’s Office of Research Services broad comparison and visualisation of FoR codes by
SNIP were added, as *Journal Finder* showed potential for use in internal research evaluation purposes. It became clear that pure ranking data should not be used in isolation and not without reference to other factors that might inform publication choices.

For the calculation of overall trends and average SNIP trajectories, plus the placement of a journal's individual impact within these trends, a data-match was undertaken between Australian field of research data and impact data from Scopus. This hinged on the ISSN, which is recorded by the ARC next to FoR codes and is also recorded by Scopus next to each publication title. Through linking Scopus data to ARC data via ISSN, the results could then be organised according to individual fields of research. A key condition was that if a Scopus title could not be data-matched with the ARC list then the title did not count towards the calculation of impact trends. As the ARC and Scopus recorded the ISSN in slightly different formats (Scopus for example does not use a dash within the 8-digit code and the ARC can list up to seven ISSNs for a journal), the script needed to do some standardisation first before data-matching.

A similar script was developed to match journal FoR codes to *Thomson Reuter’s* Journal Impact Factors.

Another key service that *Journal Finder* accesses directly is *Ulrichsweb*. This provides valuable journal-level information including each title’s scope, frequency of publication, where it is abstracted/indexed and link to the journal homepage to obtain submission guidelines for authors. As researchers can only submit the same article to one journal at a time, there is a need to ensure researchers target the most appropriate journal for their work (not necessarily the highest impact journal in their field) the first time, in order to increase their chances of being accepted and to minimise the number of round trips to a journal before a research paper is published.

*Journal Finder* also connects to the University library journal subscription, if available. This allows for a more in-depth assessment of a title to determine the ‘fit’ of the intended paper to the journal. Sometimes researchers, in their haste to publish, fail to properly consider paper quality as a factor in selecting a journal, so *Journal Finder* aggregating journal operational data with quality indicators is useful. Links are also provided to Elsevier journals via an API where information such as acceptance rates and turnaround time is available.
As discussed previously, funder Open Access mandates increasingly require researchers to consider open access options when choosing publication outlets. The University's own Open Access to Research Policy (University of Western Sydney 2015) requires all research published with a Western Sydney University affiliation to be made 'open' as soon as possible after publication.

Open access comes in three flavours: gold, where publications are 'born' open, 'green' where publishers allow a version of the paper to be made available following an embargo, and 'hybrid' where publishers, for an article processing fee (or APC), will make an article 'open' in a subscription journal. Mandates and policies aside, numerous studies (Ebrahim et al. 2013; Swan 2010; McCabe & Snyder 2013; Xia, Mears & Wihoite 2011; Xu, Liu & Fang 2011) have claimed 'open' publications attract more citations than papers behind a paywall, so it is advantageous for researchers to consider this option. To help researchers navigate the open access maze, Journal Finder connects to the Directory of Open Access Journals (DOAJ) and Sherpa/RoMEO. DOAJ provides a comprehensive appraisal of individual open access journals to assist researchers to make choices when selecting the 'gold' open access option, and Sherpa/Romeo describes a journal's 'green' archiving options. As part of the Library's future program of work, a valuable addition to Journal Finder’s data sources will be Cabell’s, recently purchased by the Library, which includes detailed data on journal acceptance rates; that is, the speed at which articles are
accepted or rejected, or if accepted then the expected period of production until an article appears online - all valuable information in the publication process.

A separate, value added feature of Journal Finder is the ERA 2012 ‘tree’ which enables users to quickly and easily determine which universities in Australia received rankings of world standard and above by FoR code. This could assist to inform decisions regarding potential research collaborations, which in turn could influence the perceived quality of research at Western Sydney University.

![Image: ERA 2012 ‘tree’ for category 3 (world standard)](image)

**The Impact of Journal Finder**

Journal Finder was first showcased to the School Librarians (discipline-based, School specific librarians) for feedback, before rolling it out University-wide via their networks and the Library's ‘Research Lifecycle’ platform. Initial responses were positive, and resulted in the addition of an export to CSV options for saved lists and journals by FoR code, and the option to save SNIP and SherpaRoMEO data as a PDF were incorporated into the user-interface prior to the ‘launch’ of Journal Finder
for the Western Sydney University research community. Each new academic staff member and research student is contacted by a School Librarian or the Research Services Coordinator at the commencement of their employment or study and offered a Library induction appointment; *Journal Finder* is on this appointment checklist. School and campus based training sessions have also been deployed, alongside featuring the dashboard in various School and Institute newsletters, and internal media.

![Image: SNIP comparison & SherpaRoMEO data for Acta Biochimica Polonica journal](image)

Significant informal feedback from School Librarians and researchers suggests that the uptake of *Journal Finder* has been highest in the social sciences and humanities disciplines. From the commencement of their research careers, scientists’ publishing patterns have traditionally been driven by highly specific discipline journals and their corresponding Journal Impact Factors. As such, their publishing paths are more defined and their perceived need for a tool such as *Journal Finder* is not as great as for social science researchers who have a less prescribed publishing ecosystem. Even so, early to mid-career researchers and HDR Students form the majority of users, due in part to their lack of publishing experience.

“I found the *Journal Finder* to be an extremely useful tool. It is well-designed and user-friendly. As an early career researcher, it can be difficult to know which journals are most suitable for a particular article and which will have the
highest impact factor. Journal Finder makes that process much easier, saving a great deal of time and effort.” Scott McKinnon Western Sydney University (School of Social Science & Psychology)

*Journal Finder* is accessed primarily from off-campus, a testament to the busy daily schedules of researchers.

Enabling Google Analytics is scheduled in the next round of enhancements, to obtain a more finer-grained picture of usage, which will inform future developments. More broadly, unsolicited interest has been received from a major publishing house to discuss the possible commercialisation of *Journal Finder*, which will not be possible due to the sensitivities around information drawn from the ERA journal list and vendor policies on individual institution subscriptions to data sources. Another Australian university has expressed interest in purchasing *Journal Finder* for internal use by their researchers, but no decision has yet been made regarding this opportunity.

Ongoing positive feedback by academics, the Office of Research Services, research administrators and Library staff highlights *Journal Finder* as an integral component of a quality publishing toolkit. Through using *Journal Finder*, researchers can concentrate on producing high quality papers while affording them with the necessary information to select the most appropriate high quality journal to target as a publication outlet. It has streamlined key Library services but, critically, *Journal Finder* has raised the profile of the Library and its collections as vital stakeholders in the research process. Overall, this project has been about organising existing information relating to journals and impact in ways that are relevant and easily identifiable. Importantly, it represents significant ways in which libraries, the traditional keepers of data, and digital humanities can collaborate in new and meaningful ways that improve conditions within the modern research lifecycle.
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