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Why do journals discontinue? A study of Australian ceased journals

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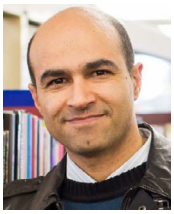

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Abstract

Little is known about why journals discontinue despite its significant implications. We present an analysis of 140 Australian journals that ceased from 2011 to mid-2021 and present the results of a survey of editors of 53 of them. The death age of journals was 19.7 (median = 16) with 57% being 10 years or older. About 54% of them belonged to educational institutions and 34% to non-profit organizations. In terms of subject, 75% of the journals belonged to social sciences, humanities and arts. The survey showed that funding was an important reason for discontinuation, and lack of quality submission and lack of support from the owners of the journal also played a role. Too much reliance on voluntary works appeared to be an issue for editorial processes. The dominant metric culture in the research environment and pressure for journals to perform well in journal rankings negatively affect local journals in attracting quality submissions. A fifth of journals indicated that they did not have a plan for the preservation of articles at the time of publication and the current availability of the content of ceased journals appeared to be sub-optimal in many cases with reliance on the website of ceased journals or web-archive platforms.

Keywords: Australia, ceased journals, journal publishing, local journals, national journals

INTRODUCTION

Historically, as the number of journal articles has been increasing (Bornmann & Mutz, 2015), so the overall number of journal titles has also grown over the years (Gu & Blackmore, 2016). The rate of journal growth was so high in the first few decades after World War II that a few scholars such as Price (1975) and Banun (1991) compared the proliferation of journal titles to the

breeding of rabbits. Although, by definition, journals are established to continue their regular publication, not all of them survive and some of them cease publication for various reasons. There have been estimates about the growth of journal titles in the past such as those by Price (1975), Tenopir and King (1997), Mabe (2003) and Tenopir (2004), but as Tenopir and King (2014) maintained all of those estimates failed to account for discontinued journals. A more recent analysis based on data from Ulrich's database showed that the number of journals published globally grew at an average rate of 4.7% from 1986 to 2013, and with the average Active rate was approximately 92%, leaving an average Inactive rate of approximately 8%, annually (Gu & Blackmore, 2016). However, Gu and Blackmore relied on the status of journals as recorded in the Ulrich database (Active/Ceased/Merged, etc.) while our study of Active Australian journals (Jamali et al., 2022) showed that there are many journals recorded as Active in Ulrich that are not indeed active. This might be simply because journals that cease publication do not report their discontinuation decision to Ulrich.

Discontinuation of a journal has significant implications both for owners and for researchers as well as for the broader scholarly communication environment. Scholarly communities and the associated discourse that are formed around a journal might be lost or damaged. The content of journals that are the result of the hard work of researchers and in most cases spending of public resources is jeopardized as has happened in the past (Laakso et al., 2021). Given the significance of the phenomenon of journal discontinuation, it is surprising that there has been little research about it. Apart from some analyses of journal growth, specifically the one by Gu and Blackmore (2016), there does not seem to be any study on journal discontinuation. This study aims to contribute to this area by shedding some light on Australian journals that have ceased in the last decade through a survey of editors and publishers associated with discontinued journals. By Australian journals in this study, we mean journals that are owned by or affiliated with an Australian entity. More specifically, the study answers the following questions:

- How many Australian journals ceased publication after 2010 and what were the characteristics of these journals—such as owner type and publisher type, age, open-access (OA) status and the field of research?
- What factors contributed to the discontinuation of journals?

Australia was chosen because it is in many ways unique. It has a rich and ancient history with its First Nations people, and a diverse and highly localized ecology with distinct geography, flora, fauna, geology and population distribution. It has a distinct cultural and social tradition. Australian journals play a critical role in Australian society both by directing or influencing Australian research and by ensuring that there are quality outlets for Australian researchers to publish work on topics that might be of particular interest in Australia.

Key points

- One hundred and forty Australian journals ceased publishing between 2011 and 2020, with an average age of 19 years on cessation.
- The majority of Australian journals that ceased publication 2011–2020 were in the social sciences, humanities and arts where local journals play an important role.
- Funding was found to be a key reason for journal discontinuation followed by lack of support and quality submissions and over-reliance on voluntary work.
- Metric driven culture and journal rankings adversely impact local journals and can lead to discontinuation.
- Many journals have neither sustainable business models (or funding), nor a preservation plan, both of which jeopardize journal continuation and long-term access to archive content.

METHODS

Data source

In another paper (Jamali et al., 2022), we studied active Australian journals. The data in that study included all active English-language peer-reviewed scholarly Australian journals from a few databases including Ulrich's Global Serials Directory, Scopus and Web of Science. In that study, while checking the journals' websites for information, we identified more than 150 journals that had ceased publication. Those ceased journals formed the base data for this study. We supplemented that list with a list of ceased Australian journals that we obtained from Ulrich's database. The list that was obtained from Ulrich's was also checked and journals that were not Australian based on the definition used in this study were removed. The two lists were combined, and duplicates were removed. Further information about each journal that was not available from Ulrich's databases was obtained from the web by looking at the journal website (if it existed), checking databases such as Informit.org or looking at Internet Archive or Pandora Archive (Australian National Web Archive). Such further information included the start year and last year of journals. For some journals (about 25), we could not find enough information (for instance when they ceased) and therefore, we did not include them in the study. We limited the list only to the journals that ceased after 2010 which included 140 journals. We also looked for contact details for each journal, primarily the last-named editor-in-chief when possible and if not, other contact details such as associate editor, managing editor or publisher. For contact details of editors, once we found their names, we looked them up on the internet to establish a current

email address. We found contact information for individuals associated with 135 of the 140 journals. We also added field of research (FoR) for each journal, which is the subject area based on the Australian and New Zealand Standard Research Classification (ANZSRC; Australian Government, 2008). ANZSRC includes a list of hierarchical FoR codes. We looked at the journal titles in Excellence in Research for Australia (ERA) 2018 list of journals (Australian Research Council, 2019). If the journal existed in the list, we added its FoR code, and if not, we determined the FoR codes based on subject coverage, adding more than one FoR code if necessary.

The survey

A short questionnaire (see Appendix) was designed with questions about the journal's funding model, open-access status, reasons for discontinuation and conservation plan. Ethics approval was obtained from the senior author's institution's human research ethics committee. The survey was put on SurveyMonkey and was sent to the contact details of editors and/or publishers using personalized emails in November 2021. The survey was open for 2 weeks and a reminder was sent to those who did not respond after 1 week. The survey was sent to individuals associated with 135 discontinued journals, mostly editors of the journals but in some cases also to other contacts of the journals (e.g., info@…). Some emails bounced back (19), and for a few (5) we received an automatic reply informing the recipients were on leave. Fifty-three completed surveys were received which equals a 39.3% response rate.

FINDINGS

The number of Active Australian journals has been declining over the last decade. Figure 1 was generated by subtracting the number of titles ceased in each year from the total number of present titles in the given year and it shows that the number of active journals dropped from 695 in 2011 to 648 in 2020. The average age of ceased journals in their last year was 19.7 years (Median: 16). Nineteen percent were up to 5 years old, 16% were 6–10, and 65% were 11 years or older.

Characteristics of ceased journals

Slightly more than half of the discontinued journals belonged to educational institutions (i.e., universities mostly). The term corporate author in Table 1 is taken from Ulrich's database which is used for the organization or body that sponsors the journal's editorial content, and in many cases, corporate authors are owners of the journals. Non-profit organizations that include learned societies and professional associations was the second category with 48 titles (34.3%). When looking at the publishers of discontinued titles, the vast majority (95%) of titles were published by their corporate authors (self-published), as Table 2 shows.

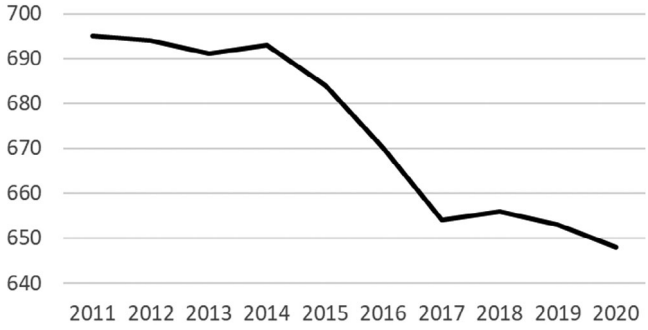

FIGURE 1 The decline in the number of active Australian journals from 2011 to 2020.

TABLE 1 Types of corporate authors of ceased journals.

Corporate author type	Number of journals	Percent
Educational institutions	75	53.6
Non-profit organizations	48	34.3
Other	11	7.9
Government	6	4.3
Total	140	100

Judging by FoR codes, most of the ceased journals (75%) belonged to fields that could be considered as social sciences, humanities and arts (FoR codes 13–22), as presented in Table 3. This is a source of concern, as local journals in these fields are probably more needed than for instance journals in natural sciences. Issues in social sciences, humanities and arts are more likely to have local and national significance and they need local outlets for publications because international journals' editorial policies might not favour papers on local issues. Some journals had more than one FoR code and therefore, the total number of codes (193) exceeds the number of journals (140).

The results of the survey

What is presented in the rest of the results section only relates to the 53 journals about which we received completed surveys. The majority of the journals that responded to the survey belonged to non-profit (50%) or educational institutions (41%). More than half of them (60%) could be categorized as arts, humanities and social science journals (FOR codes 13–22) with the rest belonging to FoR codes 1–12. They were on average 22 years old when they ceased (median = 19).

Publication status

In terms of publication format in the last year, 27 of 53 journals (51%) were published online only, 11 (21%) were print only and 15 (28%) had both print and online publication. We asked about the open-access status of the journal (Table 4). About half

TABLE 2 Types of publisher of ceased journals.

Publisher type	Number of journals	Percent
Self-publish	133	95.0
Educational institutions	2	1.4
International commercial publisher	3	2.1
Small commercial publisher	2	1.4
Total	140	100

TABLE 3 Field of Research of Australian ceased journals.

2-Digit FoR code	# of Journals
01 Mathematical Sciences	3
02 Physical Sciences	0
03 Chemical Sciences	0
04 Earth Sciences	2
05 Environmental Sciences	5
06 Biological Sciences	4
07 Agricultural and Veterinary Sciences	4
08 Information and Computing Sciences	6
09 Engineering	6
10 Technology	2
11 Medical and Health Sciences	12
12 Built Environment and Design	4
13 Education	15
14 Economics	5
15 Commerce, Management, Tourism and Services	16
16 Studies in Human Society	25
17 Psychology and Cognitive Sciences	9
18 Law and Legal Studies	15
19 Studies in Creative Arts and Writing	15
20 Language, Communication and Culture	21
21 History and Archaeology	8
22 Philosophy and Religious Studies	10
MD Multidisciplinary	6
Total	193

(25, 48%) were subscription-based, and 23 (44%) were Diamond OA (free for both authors and readers). Three journals (6%) had embargo and one journal said none of the options but did not explain. There was no Gold OA (free for readers but charging authors an article processing charge, APC) or Hybrid journal (i.e., subscription-based with an option to pay APC to publish an article as OA). One journal did not respond to this question.

TABLE 4 What was the open-access status of the journal?

Open-access status	*N*	%
Subscription-based	25	48
Diamond OA, i.e., free for both readers and authors	23	44
Embargo	3	6
Other	1	2
Gold OA, i.e., free for readers but charging authors	0	0
Hybrid	0	0
total	52	100

TABLE 5 To the best of your knowledge, how was the journal funded? (Select all that apply).

Funding source	*N*	%
Funding from a parent organization	35	66
No funding was needed, the journal was entirely run on voluntary work	16	30.2
Subscription fees	15	28.3
Advertising	4	7.5
Author processing charges (APC)	0	0
Don't know	1	1.9

Funding

About a third of the journals (35, 66%) were funded (at least partially) by their parent organization and slightly more than a quarter (15, 28.8%) had subscription fees as shown in Table 5. The discrepancy between subscription figure in funding question (Table 5) and OA question (Table 4) might be because the OA question was about access and 'subscription' may have been interpreted to apply to cases where members of societies or associations receive a journal through their subscription. Sixteen journals (30.2%) chose the option of 'no funding was needed'. Four journals had advertising revenue. Advertising of course is only significant for a limited number of subject fields. This was a checkbox question, and more than one source of funding could be chosen. Some of the journals that chose 'no funding was needed' also chose some other options (e.g., funding from parent organization). It was clear from comments that this was because some journals did not need a monetary budget as such for editorial and publishing processes were done either by voluntary work or through the support provided by the parent organization (such as website hosting, etc.). It should be noted the word 'funding' could have been interpreted differently by different people. An

editor might think funding is only monetary support, but a publisher might see an office space provided for the journal as a kind of funding too (Table 6).

Respondents were asked if the journal received financial support (i.e., money not generated through subscription, APCs, advertising revenue) to which 35 journals (67.3%) answered no and 17 (32.7%) answered yes. Those who received financial support were asked to provide details about the nature of the support. Eight mentioned some funding from their organization and seven mentioned that they had received some funding from their university/school/faculty. One journal mentioned a small grant from the government and another journal mentioned help from an affiliate organization in doing the graphics and hosting the website.

To better understand the financial health of the journals, we asked about their profit and loss in their last year. No journal made a profit, 10 made a loss and 12 broke even. Fifteen respondents did not know the answer, maybe because they were not aware of the journal's financial details at the time (e.g., when the finance is managed by society and the editor is not involved in its details). The 16 journals that chose 'other' and explained seemed to consider profit and loss an irrelevant issue for they believed their 'journal was not run as a commercial entity' and 'was not set up to make money'. Other similar comments were statements such as 'was not required to make a profit' or 'was not a for-profit journal' or 'not expected to produce a profit', or 'there was no revenue or specific cost'. Three mentioned the journal was supported by membership fees, and one said 'not applicable'.

TABLE 6 In the last year of publication, what was the financial status of the journal?

Financial status	*N*	%
The journal made a profit	0	0
The journal made a loss	10	18.9
The journal broke even	12	22.6
Don't know	15	28.3
Other	16	30.2
Total	52	100

Reason for discontinuation

A few reasons were offered in a question with a Likert scale about the discontinuation of journals. Table 7 presents the frequency and percentage of responses. The last column shows the mean value calculated using numerical values of the Likert options (from 1 for 'Not at all' to 5 for 'to a very great extent'). Funding was the most significant reason with a mean value of 3 and a third of respondents seeing it as a factor in discontinuation decision to a very great extent. Funding was followed by a lack of support from the owner of the journal ($M = 2.6$) and a lack of quality submissions ($M = 2.4$). The factor that was least influential for the discontinuation of most journals was the relevancy of the subject area.

This question offered an 'other' option in case other reasons were involved in the discontinuation decision. This was used by 22 respondents. Some of the comments re-emphasized or elaborated on options already offered in the question. For instance, four of the comments were related to funding and financial viability (funding) and two comments were about not being able to replace editors who retired or left (disengagement of key people). Five mentioned reasons for the lack of quality submission including not being indexed in citation databases and ranking list. Not being indexed in Scopus or PubMed made the journals less attractive for authors. One commented about ERA ranking: 'The impact of the ERA journal rankings - ranked low in the original list and never recovered reputation'. Another respondent noted, 'too much competition from other emerging journals. Submissions dried up'. Two comments were related to the journal not being relevant anymore due to reasons such as a change in the audience's expectation, or the audience not being broad enough to sustain the journal.

Among reasons not already in the options list, workload was the most frequent one ($N = 7$). This was related to academics being overwhelmed and not having the workload capacity to

TABLE 7 To what extent did the following factors influence the decision to discontinue the journal? The mean value is calculated using numerical values of the Likert options from 1 for 'Not at all' to 5 for 'To a very great extent'.

	Not at all		A little		To some extent		To a large extent		To a very great extent			
Reason for discontinuation	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	Total	Mean
Funding	15	32.6	4	8.7	5	10.9	6	13.0	15	32.6	45	3.0
Lack of support from the owner of the journal (parent body)	19	41.3	2	4.3	6	13.0	7	15.2	8	17.4	42	2.6
Lack of quality submissions	20	43.5	4	8.7	11	23.9	5	10.9	6	13.0	46	2.4
Disengagement of key people	19	41.3	9	19.6	4	8.7	8	17.4	4	8.7	44	2.3
Difficulty to find reviewers	21	45.7	6	13.0	10	21.7	1	2.2	2	4.3	40	1.9
The subject area of the journal was no longer relevant	40	87.0	2	4.3	1	2.2	0	0.0	0	0.0	43	1.1

serve as editor. One of the workload related comments was 'understaffing'. There were also other specific reasons such as a change in the journal ownership and en masse resignation of the editorial board, or an organization wanting to change its publication plan.

The next free text question also offered a space for respondents to comment if they had anything else to say about discontinuation. Thirty-six left comments. The journal ranking and metric-driven culture dominated these comments (16 comments). The respondents highlighted three aspects. The first was the fact that it is difficult for local/regional journals to get into ranking systems or citation databases. The second, related aspect, is that the metric-driven culture that dominates the research environment leaves little incentive for researchers to publish in local journals. The third point was related to the competition between local and international journals. Examples of comments related to these points are presented below.

> Very hard to run a regional journal if there is a major international competition for articles. The new impact factor focused and journal quality rules make new journal establishment a lot of work for not a lot of benefit.
>
> Our journal stopped publishing [year] due principally to the supply of Australian-authored articles drying up (we were getting third rate submissions from overseas but had little energy to continue the journal with this as the main fodder). The lack of supply of domestic content was mainly due to Australian authors' disincentive to publish in lower-ranked journals because of university and research organisation KPIs.
>
> Ranking of journals has killed those which are not associated with the most well-regarded US/UK institutions.
>
> Australian journals often operate in niche spaces that cater to a very small reader audience - meaning they are not commercially viable or commercially attractive. Without the indexing, the articles are also difficult to claim for ERA, and cannot be used for things like H-Index, journal rankings etc. There is inherent value in Australian content so we either need to make Australian content a bigger part of international journals or we need to recognise Australian journals as part of the larger metrics/measurement activities.
>
> I think locally-focused papers are getting harder to publish and all work is expected to be placed in a wider global context. Authors also need to meet academic standards that are hard for a journal of this type to compete with.

Funding was another issue raised in the comments (4). The respondents acknowledged that 'Publishing is an expensive undertaking' and that without a business model that suits a given journal, 'volunteer organisations are unlikely to be able to afford the cost of published journals'. An issue related to funding and cost was workload that was commented on by four respondents. Most of the editorial work in journals published by universities and societies is done on a voluntary basis, therefore, as one respondent commented, 'while enthusiasm remains, we have yet to see whether this model [i.e., relying on volunteers to run a journal] will be viable into the future'. What makes it worse is that universities, especially smaller ones do not give much credit to editorial work.

> The biggest issue from my perspective is that in many of the smaller (ie: Non G08[Group of Eight Universities]) universities, journal editorial work is largely regarded as unimportant and thus receives little credit. It doesn't feed into contemporary performance metrics, and thus doesn't feed into workload modelling, making it a labour of love, which is not always sustainable.
>
> I am concerned about the limited number of academic journal publishers currently operating which, I understand, have bought up smaller presses and can now decide to drop a journal if they think it doesn't make a profit, have a big enough audience or whatever. Journals also rely on voluntary contributions by academics and this is getting harder to access as no university I know wants their academic staff doing gratis tasks in paid work time and in fact the workloads are so onerous that many academics won't do reviews or write for a journal that is not blessed with a high Impact factor. I have wondered if the whole scene is going to crumble at some point, perhaps other than journals like the British Medical Journal, and a great deal of knowledge lost except to 'local' or networked academic communities, especially in niche areas. It is somehow ironic that at a time when information can flow around the globe in seconds, that important knowledge in recognised publications can be extinguished on merely a commercial basis.

Other comments were either general comments about the difficulty of publishing journals or about specific cases such as a decline in membership number of a society, or technical challenges of online publishing.

The last question of the survey was a free text question that gave the respondents a space to share if they had any further comments about their journal or journal publishing in Australia in general. Thirty-eight used the space to comment. These comments were mostly related to stories of individual journals or repetition of points made in the reasons for discontinuation question. They included comments about financial viability, workload and difficulty of relying on voluntary works, lack of quality submission and pressure for ranking. One notable point that could be inferred from a few comments was too much reliance for some journals on certain individuals (usually chief editor). Comments indicated how they failed to find a replacement after an editor retired, left or died and no one expressed interest. One factor contributing to the lack of interest in such roles as mentioned in the comment was that such roles are voluntary and do not attract workload or payment. Only two comments mentioned

TABLE 8 Where are the articles currently available online? (Select all that apply).

Online availability of articles	*N*	%
No	4	7.5
Yes, some articles/issues	16	30.2
Yes, all articles/issues	27	50.9
Don't know	6	11.3
Total	53	100

TABLE 9 Where are the articles currently available online? (Select all that apply).

Location of articles	*N*	%
Articles are available on the journal website	18	34.0
Articles are available in a repository	9	17.0
Articles are available through a service such as Informit, JSTOR, etc.	17	32.1
Other, please specify	17	32.1

the possibility of transferring their journal to commercial publishers. In one case they 'flirted with commercial publishers, but ultimately decided to publish as open access with internal funding for admin, copy editing and tech support', but later the university lost interest and ceased its support. In another case, the editor reviewed the market and decided that 'without significant investment and/or transferral of publication to one of the big houses (Elsevier) there was little point'. But the comment did not mention why the transferral option was not considered or pursued.

Content preservation

The loss of content is a major risk in the case of ceased journals. About two-thirds of journals (34, 64.2%) had a plan for long-term conservation of published articles at the time of publication and 12 (22.6%) indicated that their journal did not have such a plan. The rest (7, 13.2%) did not know. When we asked if the published articles are currently available online 16 (30.2%) said 'yes some articles', 27 (50.9%) said 'yes all articles' (see Table 8). We then asked where the articles are available. About a third was available on the journal website, another third on services such as Informit.org, which is an initiative at RMIT University in Melbourne. Nine journals made their articles available on a repository. The 17 respondents who chose 'other' mentioned the National Library of Australia or its Pandora Archive (8), website of the parent body (5), print copies (3), university library (2), AustLII (the database of Australasian Legal Information Institute) (1), DOAJ (1). Note that DOAJ does not in fact archive articles, something the respondent may not have understood. There were also comments that were not very clear such as 'it's been digitised' or 'in an archive of some kind'. (Table 9)

DISCUSSION AND CONCLUSION

This study analysed 140 Australian ceased journals and presented the findings of a survey of 53 of them to shed light on the circumstances that resulted in discontinuation. The study showed that while the global trend of journal publishing shows growth of titles (Gu & Blackmore, 2016), Australian journals show a declining trend. Moreover, the discontinued journals are in many cases well-established journals as their average age at their last year indicated. Gu and Blackmore (2016) showed that the first 4 years of the life of journals are critical in their survival and if they get past that period, they have a better chance of continuation. However, in the case of Australian journals about 82% of ceased journals were 5 years or older.

The majority of ceased journals were from arts, humanities and social sciences. These areas can be either international or local; however, local orientation is important in these areas. As Sivertsen (2016) said social sciences and humanities 'would lose their raison d'être by disconnecting from the surrounding culture and society and by mainly communicating in international journals that are only read by peers abroad' (p. 358). He argues that besides studying society and culture, social sciences and humanities influence economic and social development, policy design, public administration, legislation, education, sustainable urban and rural life, media and information, international affairs and global understanding. Therefore, internationalization and local relevance in the social sciences should not be seen as opposed to each other, but as a question of a dynamic balance (Sivertsen, 2018). As one of the comments from the survey indicated, this would make it hard for locally focused papers to find an outlet for publication, a concern that has been raised by others for Australia (Haddow, 2021). The editorial policies of international journals might not welcome locally focused papers, at least in certain fields. This is important in the context of the Australian national research evaluation exercise called Excellence in Research for Australia (ERA). ERA in the last few rounds released a list of journals and only articles published in the listed journals could be submitted for the evaluation of disciplines. All of this means that scholars in arts, humanities and social sciences will have fewer outlets to choose from. The problem, however, is not limited to social sciences and humanities. The metric culture and push for internationalization have a broader impact on local journals in all fields. As Salager-Zeyer (2015) stated, this situation results in a publication drain for local journals because even early career scholars prefer to publish their papers in prestigious international journals.

Most of the ceased journals belonged to or were affiliated with universities or non-profit organizations and they were self-published by their owners. Only the publication of a few of the journals had been outsourced to commercial publishers. Journal publishing is, as Watt (1998) puts it, 'a difficult road to travel' (p. 79), especially for academics and non-profit organizations. This is because journals face an increasing number of challenges such

as a very competitive market dominated by a few international publishers, open access publishing with its various economic models, the shrinking number of independent and non-commercial publishers, and a crisis on the demand side with budgetary restraint within academic libraries. Researchers, academics and learned societies do not typically have publishing expertise. Many academic journals start out of the passion of a few researchers that might not consider a proper market analysis or a carefully planned business model, things that commercial publishers certainly do before launching new journals. The survey question about the financial health of journals (Table 6) showed that at least a third of the journals that completed the survey were not intended to be profit making. The results of the survey and the comments showed how many of these journals rely on key individuals or discretionary support from a school or university, with obvious and significant implications for their sustainability. As people move and retire, and universities go through restructures or leadership changes, the publication of journals is easily jeopardized. The fact that 44% of journals that completed the survey were Diamond OA, 66% said they were funded by parent organization and another 30.2% had no funding also indicate their reliance on support and voluntary work for publishing the journals. The subscription-based journals face their own challenges in the current scholarly communication environment. Libraries are unlikely to subscribe to individual journals and mostly get their journals through vendors, big deals, consortia and packages. This adds to the challenges faced by subscription-based journals published by universities or societies. Therefore, it is not surprising that funding appeared to be a strong reason for discontinuation. They need a business model that works for them; that is, a business model that works for local journals. Commercial publishers are less likely to show interest in the publication of such journals because a key factor in the decision of publishers is revenue and these journals are not likely to be profitable. One of the editors who commented on the question about discontinuation stated that they actually approached a well-known international publisher but it did not show interest in the topic area.

An important issue in the closure of any journal is the preservation of its content and whether it will be made available and accessible for the future. We did not manually check if the content of ceased journals were accessible or not and relied on the self-reported data from editors collected in the survey, which needs to be verified through manual checking. Nevertheless, the survey data show that a quarter of the journals did not have any conservation plan and the current availability of articles in the case of several journals is not optimal. A service such as Pandora might save the content from being lost, but it is not an optimal mean for making content accessible for scholarly use as it saves copies of the entire journal website and lacks the search and browse functionality of a scholarly database. The websites of ceased journals are not reliable and they might be closed for many reasons. In the survey, we simply asked about the online availability of articles and this is different from deep archiving that has an intention of preserving materials for a very long time, something that it is recommended for journals to do. DOAJ considers services such as LOCKSS, CLOCKSS, Portico, national libraries (through mandated deposits) and PMC as proper deep archiving. But institutional repositories, journals' own sites, or third-party aggregators (e.g., EBSCO) are not considered deep archives (DOAJ, 2015). There is a need for increasing awareness of preservation among current journals. Best practices should be promoted among journals that are published by universities and non-profit organizations.

This was our second study on Australian journals, the first one being a study of active journals (Jamali et al., 2022), and to the best of our knowledge, it is the first study on the publication side of ceased journals. The study, however, was not without limitations. There might be more ceased journals that we did not know about, and the survey only included a relatively small sample. The findings might not be generalizable to journals in other countries as many factors such as language, academic culture, research system and the overall scholarly communication environment of a country can influence journal publishing.

We appreciate that not every journal discontinuation is a negative event. Some journal closures are natural and inevitable as fields evolve, disciplines change, societies disestablish due to losing relevance and so on. Journals might become obsolete and, therefore, inevitably discontinue but there is little research on journal obsolescence and most past research on obsolescence (e.g., Nicholas et al., 2005; Wallace, 1986) deals with obsolescence at an article level and not journals. Overall, it is clear that the discontinuation of journals and the circumstances that cause it is not a well-known phenomenon. Given the significance of local journals and the declining trend shown in this paper, it is crucial that more research is done to understand this phenomenon and to develop strategies for better sustainability and the long-term viability of small local journals. To sum up, it is clear that journal publishing is a professional activity that requires knowledge and experience. Enthusiasm alone is not sufficient, and every journal needs to have proper contingency planning and a robust business plan. The key takeaway from this study for journals is that they need to have:

- a suitable business model that works for them;
- sustainable long-term funding sources;
- a plan B in the case of any issues with funding; and
- a plan for long-term preservation and archiving.

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AUTHOR CONTRIBUTIONS

Hamid R. Jamali and Simon Wakeling: Conceptualization. **Hamid R. Jamali**: Data curation; formal analysis. **Hamid R. Jamali, Simon Wakeling and Alireza Abbasi**: Methodology; writing—original draft preparation; writing—review and editing.

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APPENDIX

QUESTIONNAIRE

Could you please write the name of the discontinued journal for which you are completing this survey? [freetext]

What was the type of publication in the last year of its publication?

- Only online
- Only print
- Both print and online

What was the open-access status of the journal?

- Diamond OA, that is, free for both readers and authors
- Gold OA, that is, free for readers but the journal charged authors an article processing charge (APC)
- Hybrid, that is, subscription-based with the option for authors to pay a fee to make their article available OA
- Embargo, that is, the journal was subscription based, but all articles were made freely available after certain period of time (e.g., 1 year)
- Subscription based
- Other, please specify

To the best of your knowledge, how was the journal funded? Select all that apply (checkbox)

- Subscription fees
- Author processing charges (APC)
- Advertising
- Funding from a parent organization
- No funding was needed, the journal was entirely run on voluntary work
- Other, please specify

Did the journal receive financial support (i.e., money not generated through subscription, APCs, advertising revenue)?

- No
- Yes, please provide details about the nature of the support
- I don't know

In the last year of publication, what was the financial status of the journal?

- The journal made a profit
- The journal made a loss
- The journal broke even
- I don't know
- Other, please specify

To what extent did the following factors influence the decision to discontinue the journal?

{Not at all, a little, to some extent, to a large extent, to a very great extent}

- Lack of quality submissions
- Difficulty to find reviewers
- The subject area of the journal was no longer relevant
- Funding
- Disengagement of key people
- Lack of support from the owner of the journal (parent body)
- Other, please specify

Please add anything else you would like to say about the closure of the journal. [free text]

Did the journal at the time of publication have a plan for long-term conservation of published articles?

- Yes (please specify)
- No
- I don't know

Are the published issues/articles currently available online?

- No
- Yes, some issue/articles
- Yes, all issues/articles
- I don't know

Where are the articles currently available online? Select all that apply [checkbox]

- Articles are available on the journal website
- Articles are available in a repository
- Articles are available through a service such as Informit, JSTOR, and so on.
- Other, please specify

Do you have any other comments about journal publishing in Australia? [free text]

Thank you for completing this survey. When you click the 'Submit your responses' button below, you will be taken to a separate form (which is not linked to this survey) in which you can provide your email address to receive a summary of the findings if you are interested.