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Investigating the Use of Plain Language Summaries: A Case Study of a Selection of Canadian Science Journals
Enquête sur l'utilisation des résumés en langage simple dans les revues scientifiques canadiennes

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Article abstract

Increasingly, researchers are encouraged to produce plain language summaries (PLSs) as a means of making research accessible to lay audiences. Canadian Science Publishing is a scholarly publisher of 22 journals that offers authors the option of creating PLSs. This article investigates how often authors who publish with Canadian Science Publishing take up that opportunity, and considers what factors might encourage or discourage their decision to produce a PLS. The article ends with a list of four recommendations that could promote increased production of PLSs in journals published by Canadian Science Publishing or other publishers.

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Research note

Investigating the Use of Plain Language Summaries: A Case Study of a Selection of Canadian Science Journals

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Increasingly, researchers are encouraged to produce plain language summaries (PLSs) as a means of making research accessible to lay audiences. Canadian Science Publishing is a scholarly publisher of 22 journals that offers authors the option of creating PLSs. This article investigates how often authors who publish with Canadian Science Publishing take up that opportunity, and considers what factors might encourage or discourage their decision to produce a PLS. The article ends with a list of four recommendations that could promote increased production of PLSs in journals published by Canadian Science Publishing or other publishers.

Keywords: Canadian science publishing, case study, open science, plain language summaries, scholarly publishing, science communication

Introduction

More and more often, researchers are being asked to make their findings available and accessible to non-experts, such as funding agencies, policy makers, research study participants, students or the broader public (Edgell & Rosenberg, 2022). Organizations such as UNESCO (2021) and Science Europe (2022) are actively championing science communication as a facet of open science, and a systematic review by Stoll et al. (2022) shows that plain language summaries (PLSs) are increasingly recommended as a means of making research accessible to lay audiences. In the field of biomedical research, a series of Good Publication Practice guidelines (DeTora et al., 2022) has emerged and includes a recommendation for creating PLSs. PLSs present the essential content of research articles in easy-to-understand language, and they are sometimes referred to as lay summaries, lay abstracts, author summaries or, in the case of health-related research, patient summaries (FitzGibbon et al., 2020). PLSs do not replace traditional scientific abstracts but rather they may appear alongside the abstracts, in the supplementary materials, or in a different or more public-facing section of a publisher's website. At present, many journals encourage but do not require PLSs as a condition of publication. This being the case, the aim of this research is to investigate how often Canadian scientists make the effort to publish a PLS, and to explore possible means of increasing the production of PLSs. This research takes the form of a small case study of Canadian Science Publishing and offers four recommendations for ways to increase the inclusion of PLSs with journal articles.

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Canadian Science Publishing: institutional context

Canadian Science Publishing (CSP) is a scholarly publisher in Canada that currently publishes 22 different scholarly journals across a range of fields in science and engineering (CSP, 2024a). Three of the journals, namely Arctic Science, FACETS, and Drone Systems and Applications are fully open access (Gold), while the remaining 19 are hybrid journals, meaning that they are subscription-based, but individual articles can be published in open access if the author chooses to pay an article processing charge (CSP, 2024b).

On their website, CSP presents a set of very high-level author guidelines for preparing manuscripts that are common to all of its 22 journals. These common high-level guidelines include a section on PLSs, which is clearly marked as being optional (i.e., not required for submission or publication) (CSP, 2024c). For authors who are interested in preparing a PLS, a link takes them to another page where they can find specific guidelines for writing and submitting a PLS (CSP, 2024d). As part of these submission instructions, authors learn that CSP also hosts another webpage on the open online publishing platform Medium[1], and it is here that readers can find the PLSs of articles that have been published in CSP's academic journals. Each PLS that is posted on CSP's Medium webpage contains a link to the full article on which it is based.

In addition to the set of high-level guidelines provided by the publisher, each journal also has a more specific set of guidelines on its own page of the broader CSP site. In consulting these journal-specific guidelines, we can see that only three of the 22 journals actively encourage the submission of a PLS in their own more specific guidelines: Arctic

[1] https://medium.com/@cdnsciencepub

Science, Canadian Journal of Plant Science, and FACETS (the multidisciplinary science journal of the Royal Society of Canada's Academy of Science).

Methods

To determine how many of the articles published in CSP's journals are accompanied by a PLS, we counted the number of PLS that appear on CSP's Medium webpage for each year beginning with the first PLS (published in 2016) up to the end of 2023. Next, we counted the total number of articles published in the corresponding journals for each year and then calculated the percentage of articles in each journal that are accompanied by a PLS.

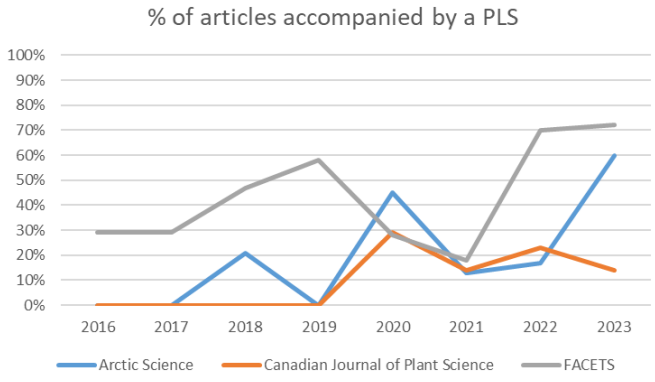
Findings

CSP's Medium website contains a total of 288 PLSs published between 2016 (the year that the PLS initiative was launched) and 2023. Each of these 288 PLSs corresponds to an article published in one of the following three journals: Arctic Science, Canadian Journal of Plant Science, and FACETS. No PLSs were produced for any articles in the other 19 journals published by CSP.

Table 1 shows the number of PLSs that were produced each year for Arctic Science, Canadian Journal of Plant Science, and FACETS, along with the total number of articles published in those same journals. This same data is presented in visual format as a line graph over time in Figure 1.

Figure 1

A line graph over time showing the percentage of articles that were accompanied by a PLS in each of the three journals.



Discussion

The most striking observation is that PLSs were only produced by authors contributing to the journals Arctic Science, Canadian Journal of Plant Science, and FACETS, which are the three journals that include information about PLSs in their journal-specific guidelines. No PLSs were contributed by authors who published their research in one of the 19 journals that did not mention PLSs in their journal-specific guidelines. This suggests that most authors may not consult the general guidelines, and they may not therefore be aware of the opportunity to publish PLSs.

CSP first launched its PLS initiative in 2016, and the overall trend shows an increase in the percentage of articles that are accompanied by a PLS. There is an anomaly in the year 2021, where the percentage of PLSs produced dropped sharply in all three journals, and a possible explanation for this could be that it was an effect of the global COVID-19 pandemic, where academics were struggling with the extra workload brought on by the rapid transition to online activities and so they may have opted out of optional work such as preparing PLSs.

In 2022, as the pandemic effects began to ease, the percentage of PLSs produced began to increase again, and in the case of FACETS, it rose notably to 70%. This significant increase may be partly explained by an editorial by FACETS's founding editor-in-chief Jules M. Blais (2021), in which he notes the value of PLSs and includes a link to CSP's Medium webpage where the PLS are posted. Additionally, in 2022 the FACETS website added a section on their own journal webpage entitled "Discover FACETS Plain Language Summaries" that links to the PLSs on CSP's Medium webpage. In this way, the linking between the FACETS and the Medium pages has become bi-directional, giving some increased visibility to the PLSs, although this linking is at the level of the main FACETS and Medium sites, rather than within individual FACETS articles. Meanwhile, the links for Arctic Science and the Canadian Journal for Plant Science remain unidirectional, pointing from the PLSs to the full articles, but not vice versa. Both FitzGibbon et al. (2020) and Edgell and Rosenberg (2022) emphasize that locating PLSs can sometimes be difficult, reducing their value for both authors and readers.

Another observation is that, overall, the percentage of PLSs produced to date is higher for research published in Arctic Science (23%) and FACETS (43%), which are fully open access journals, and noticeably lower in the Canadian Journal of Plant Science (9%), which uses a hybrid model. This may suggest that authors who are already committed to the open movement in one way (i.e., publishing in open access), may be more likely to support other facets of openness, such as making research findings accessible to lay readers. Of course, it must be acknowledged that none of the contributors to CSP's other fully open access journal (Drone Systems and Applications) produced any PLSs, which suggests that an essential first step is making authors aware of the option to publish PLSs.

Finally, FACET's journal-specific guidelines for PLSs allow for a maximum length of 500 words, as compared to the 250-word limit indicated in the guidelines for Arctic Science and the Canadian Journal of Plant Science. In all cases, the recommended length for the scientific abstract is

Table 1

The number of plain language summaries (PLS) divided by the total number of articles published in each journal between 2016 and 2023

Year	Arctic Science # PLS/# articles (%)	Canadian Journal of Plant Science # PLS/# articles (%)	FACETS # PLS/# articles (%)	Total # PLS/# articles (%)
2016	0 / 11 (0%)	0 / 82 (0%)	6 / 21 (29%)	6 / 114 (5%)
2017	0 / 39 (0%)	0 / 104 (0%)	17 / 58 (29%)	17 / 201 (8%)
2018	6 / 29 (21%)	0 / 110 (0%)	24 / 51 (47%)	30 / 190 (16%)
2019	0 / 14 (0%)	0 / 72 (0%)	19 / 33 (58%)	19 / 119 (16%)
2020	13 / 29 (45%)	19 / 65 (29%)	17 / 60 (28%)	49 / 154 (32%)
2021	4 / 32 (13%)	14 / 85 (14%)	18 / 100 (18%)	36 / 217 (17%)
2022	9 / 54 (17%)	18 / 80 (23%)	32 / 46 (70%)	59 / 180 (33%)
2023	26 / 43 (60%)	4 / 28 (14%)	42 / 58 (72%)	72 / 129 (56%)
Total	58 / 251 (23%)	55 / 626 (9%)	175 / 411 (43%)	288 / 1175 (18%)

250 words, but in order to make scientific content accessible to non-experts, it is necessary to have enough space to give background information and explain the specialized concepts. By imposing a very low maximum word count for PLSs, a journal could be making the task too challenging for authors, who may then decide to opt out. Allowing more space could make it easier for authors to produce an effective PLS.

Recommendations

Based on this small case study, we can already identify some factors that appear to favour the production of PLSs, leading us to formulate the following four recommendations, most of which align with observations made elsewhere in the literature.

1. Raise awareness about the option to publish a PLS

Authors need to know that they have the option of publishing a plain language summary, so it is important to present this information in the place that they are most likely to look, or in multiple places. In the CSP case study, only those journals that included information about PLSs in their journal-specific guidelines were able to convince authors to publish PLSs.

The need to raise awareness is also discussed elsewhere in the literature. Indeed, Rosenberg et al. (2021) go so far as to emphasize that the production of PLSs should become routine for researchers, while Lobban et al. (2021) suggest that authors should be thinking about developing a PLS from the outset of the manuscript preparation process.

2. Make the PLSs findable and visible

Discoverability can be a major barrier to readers engaging with PLSs. Rather than hosting PLSs on a completely separate site which has primarily one-way links (i.e., from the PLS back to the main article), it would be preferable to feature the PLSs directly on the journal's own pages, or to integrate bi-directional links. In the CSP case study, the FACETS journal is the only journal that incorporates bi-directional links and displays PLSs on their own site, and this journal saw a considerable jump in the number of PLS produced once this strategy had been implemented. However, even in the case of FACETS, the linking to PLSs occurs only from the main FACETS page and there are no links to PLSs from within individual articles. Adding links within the articles would further improve the discoverability of the PLSs.

This recommendation aligns with those found elsewhere in the literature. For instance, Rosenberg et al. (2021) state that the PLS should be made available alongside the scientific abstract, while the Patient Focused Medicines Development (PFMD 2020) how-to guide for creating PLSs suggests that the journal that publishes an academic article should also disseminate the associated PLS.

3. Capitalize on existing receptiveness to the open movement to encourage PLS production

While authors for all types of journals can be encouraged to prepare PLSs, those authors who have already demonstrated a commitment to the open movement, such as by publishing in open access, may be particularly receptive to producing a summary. In the CSP case study, of the three journals that had PLSs, it was the two open access journals that had noticeably more.

The association between PLSs and the open movement is echoed in the literature. For instance, Rosenberg et al. (2021, p. 2016), who present recommendations for PLSs on behalf of Open Pharma, note "the next step of openness is to create a more accessible and inclusive environment through the rou-

tine development of plain language summaries." Meanwhile, both Rosenberg et al. (2021) and Lobban et al. (2021) emphasize that access to PLSs should be free, even if the full paper is not open access.

4. Allow longer word limits for PLSs

While it is important for PLSs to be of a digestible length, it may be preferable to set a target word length for the PLSs that is longer than the length permitted for the scientific abstracts. Packing a lot of information into a short scientific abstract is already challenging, but when the specialized scientific content needs to be explained in an accessible way for lay readers, a tight word limit becomes even more daunting and may discourage authors from even trying to write PLSs. In the CSP case study, the FACETS journal was the only one to set a more generous word limit (500 words as compared to 250 words for the other two journals), and this journal saw the highest percentage of PLSs.

This recommendation contrasts with some other recommendations in the literature, such as Rosenberg et al. (2021, p. 2016), who recommend making PLS of 250 words or fewer on the grounds that "this allows for indexing in directories such as PubMed and facilitates straightforward translation." However, the literature from the field of translation clearly demonstrates that concise writing, which may eliminate features such as optional relative pronouns or which may implement noun stacks of pre-modifiers over the longer but clearer option of post-modification, can result in texts that are more challenging to read and translate, especially for automatic translation tools (e.g. Bowker, 2024a). While plain language emphasizes the use of shorter sentences, the overall text may end up being somewhat longer once the concepts have been explained in a sufficiently accessible way. This point is echoed by Lobban et al. (2021), who note that truly plain language facilitates translation by both human and automatic translators.

Conclusion

As noted in the introduction, PLSs bring several benefits that have already been well documented, such as making research findings available to interested parties beyond the conventional academic community. In Canada, a country that has two official languages (English and French), as well as numerous Indigenous and heritage languages, PLSs have the added benefit of being easier to digest for people reading in their non-dominant language, as well as being easier to translate (e.g. with the help of an automatic translation tool, such as Google Translate or ChatGPT) (Bowker, 2024b). The value of PLSs is clear, and the number being produced is growing, although there remains considerable room for improvement. As this small case study of one Canadian publisher reveals, more could be done to encourage the production of PLSs, such as making the opportunity for publishing PLSs clear to authors; making it easier to find PLSs by linking to them from within articles and featuring them on journal webpages; appealing to authors who are committed to other aspects of the open movement; and allowing a longer word limit to facilitate writing for lay readers. By implementing these recommendations, CSP and other publishers could potentially increase the number of PLSs that are produced.

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