

Strategies for Multilingual Researchers to Acquire Scientific Writing Skills in English




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The challenges multilingual authors face in scientific writing are perhaps one of the major stumbling blocks in their careers. This conclusion has been drawn by the two authors of this text, despite their different backgrounds. Prof. Osvaldo N. Oliveira Jr., who teaches and researches physics and materials sciences, has teamed up with linguists and computer scientists to develop scientific writing strategies and tools out of necessity to produce scientific articles. These strategies have been taught in graduate courses on scientific writing for almost 20 years and were included in the book *“Writing Scientific Papers in English Successfully: Your Complete Roadmap”*.¹ Originally from the United Kingdom and holding a Master’s in Applied Linguistics, Jane G. Coury emigrated to Brazil, where she has been proofreading and translating academic articles for 30 years. She draws on her expertise to offer some tips to multilingual authors, including acquiring the skills necessary for language-independent scientific writing.

The ability to clearly communicate one’s findings is essential for any scientist’s career, and writing engaging papers and research proposals has become an integral part of a researcher’s activities. The American Chemical Society (ACS) has long provided authors with various strategies to help them produce high-quality manuscripts, mostly in editorials and in ACS on-campus events. It has recently launched an online tool called ACS Author Lab (<https://connect.acspubs.org/author-lab>) with videos and illustrations of key points in scientific writing, including a module specific for multilingual authors, i.e., authors whose mother tongue is not English. This module is based on a learning-by-doing strategy to accelerate multilingual authors’ acquisition of writing skills. It is a welcome addition as most authors are multilingual and may benefit from clear guidance and pointers specific to their needs when writing academic articles. Designed to provide researchers with the instruction they need to master scholarly communication, the *ACS Guide to Scholarly Communication* (<https://pubs.acs.org/doi/book/10.1021/acsguide>) also offers a wealth of practical information to authors.

One major challenge facing multilingual authors is to identify the origin of their difficulties in producing a high-quality paper. By this, we mean that these authors may not be able to distinguish problems related to the academic writing genre from those caused by their possibly limited proficiency in the English language. In fact, some of these difficulties are completely language independent and relatively easy to solve. Our recommendation is based on authors paying attention to the framework of a paper and key concepts of scientific writing. The first modules of the ACS Author Lab, for example, offer

tips to authors to craft a strong title and abstract to highlight the significance of the work; to prepare a detailed outline to be turned into a quality manuscript; and to create attractive visual elements in figures and tables for different types of data. Furthermore, authors should notice that the structure of an academic article (i.e., Abstract, Introduction, Materials and Methods, etc.) is universally recognized.² The Introduction, for instance, should start from the background in the most general topic to the specifics of the paper. The opposite is expected for the Conclusions, where the authors initially recount their findings and mention the implications of their findings at the end of the section. The Abstract has a fixed structure, normally containing the following components: “setting, gap, purpose, methodology, results and discussion, conclusion”. The length of each component matters, as one should expect the contents to be dominated by the purpose and results. The setting and gap components should not contain more than one or two sentences. The methodology only needs to be described in detail if innovations are introduced as part of the paper contributions. Ideally, the abstract should contain a sentence that defines the main contribution of the work. The content of this sentence should be reflected in the title of the paper, which should be concise while still conveying the message to specify the scientific contributions.

While the issues above apply to any novice author, regardless of their proficiency in the English language, addressing them entails an added difficulty for multilingual authors. Researchers, whose first language is not English, may be insecure about writing and experience a lack of register awareness, phraseological inadequacies, and semantic misuse.³ These issues may stem from possible gaps in an author’s English language learning background. For example, a multilingual author may think in their mother tongue, produce a piece of text, and then rely on machine translation systems to obtain the corresponding English version. The quality of this version may be poor as the text structure and style could vary significantly in English. Multilingual authors might find it useful to devise strategies that suit their individual needs and learning style to produce a consistent, well-written paper that

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reflects the hard work they put into their research. A helpful strategy is to extend the procedure of performing a critical analysis of the sections and components of well-written papers in the literature and make a list of references and a glossary of keywords to build up a terminology base. Schuster et al. suggest doing the following: select appropriate papers and books; choose some relevant expressions and highlight them; paste these expressions in a file with the structure of a paper and place them in appropriate categories; then classify the expressions according to rhetorical messages (summarize, describe, exemplify, oppose, explain, justify, compare, contrast, etc.).¹ These steps can be sandwiched by brainstorming ideas with peers beforehand and rewriting the paper after receiving feedback. Computer Assisted Translation tools can help authors as they create translation memories, thus ensuring consistency throughout the paper and in future academic articles. There is also a range of free tools available to help authors in writing scientific papers. For example, the Academic phrasebank (University of Manchester) is a general resource for academic writers, which has useful phrases for all parts of an academic paper (see at <http://www.phrasebank.manchester.ac.uk/>). Other resources are listed at the end of this text.

When using phrase banks from the literature, or producing their own terminology base, multilingual authors may gain more knowledge in their use of expressions and phrases in English. This is crucial because the reuse of text—which is useful as a strategy to learn—may also cause excessive overlapping with the literature, leading to authors being caught by plagiarism software. Furthermore, some contents of a paper, such as the topic sentence that defines the main contribution of the work, are likely to appear more than once in the text. As chunks of text cannot be repeated in a paper, authors need to be able to express the same linguistic content in different ways and become confident in paraphrasing. Module 8 in the ACS Author Lab provides important hints on how to learn by doing.

To sum up, when writing an academic paper, multilingual authors may need to deal with gaps in their language learning background or a lack of opportunities to practice academic writing skills. We hope that the ACS Author Lab may assist these authors in these endeavors.

RESOURCES FOR MULTILINGUAL AUTHORS

- The Oxford Collocations Dictionary: <http://www.freecollocation.com/>

This dictionary provides collocations that show writers which words go together in English ensuring appropriate wording.

- Roget's Thesaurus: <http://www.roget.org/index.htm>
This resource offers synonyms to help avoid repetition.
- Ludwig Guru: <https://ludwig.guru/>
This search engine gives contextualized examples taken from reliable sources.
- Harvard College Writing Center: <https://writingcenter.fas.harvard.edu/pages/resources>
This website offers writing resources to help authors write academic papers.

- Reverso Translation: https://www.reverso.net/text_translation.aspx?lang=EN

This resource is an online translation aid.

- Pro Z: <https://www.proz.com/search/>

This website provides terminology, glossaries and dictionaries.

- Corpus of Contemporary American English: <https://www.english-corpora.org/coca/>
A genre-balanced resource that shows examples in context in American English.
- British National corpus: www.english-corpora.org/bnc/
A genre-balanced resource that shows examples in context in British English.

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Notes

Views expressed in this editorial are those of the authors and not necessarily the views of the ACS.

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