

Write well or perish

Courses and services help researchers to write a good scientific paper

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Compelled to produce knowledge and publish it in journals, Brazilian researchers are continually challenged to demonstrate a skill that goes beyond scientific talent: the ability to write in a logical and correct way - and in English, which is the language of science. The novelty is that the growing range of services and initiatives tailored to assist researchers in this task - in the form of workshops facilitated by experts, translation and review services and computer programs capable of shaping the scientific articles.

The example that best represents this trend may be of the Publicase company, which in addition to offer translation services and articles review, it also created workshops and training courses to guide researchers interested in placing their findings in the paper. The company has as partners the biologists Marcia Triunfol Elblink and Andrea Kaufmann-Zeh, who worked as researchers abroad and then embarked for scientific communication.

At the beginning of the last decade, served as editors, respectively, of Science and Nature journals. The Publicase was created in 2007 and has served many institutions. Now, with support from FAPESP, is promoting a series of workshops at São Paulo (USP) and Campinas (Unicamp) universities.

In their courses, a small group of researchers spent a week poring over the task of writing an article. "We work with two or three students devoted to each paper. We started on Monday and Friday the article is written. In general they are manuscripts that were in the drawer", says Andrea. The work takes place on two levels: the strategic organization of the text and correcting the English. "We realized that the main issue has nothing to do with English, but with the argument of the article. We discuss then how to make it interesting to seek publication of highest impact

within its content", says. A common bottleneck, according to Andrea, refers to an existential discussion: what, after all, is that the question of such paper?

"Many people can not clearly define what is their questions", says. "Our job is to rescue and emphasize the relevance of the questions and results. We call this the scientific marketing", says. In the workshops of shorter duration, the Publicase offers a collection of tips on, for example, the appropriate format for each type of article or how to choose the most possible prestigious publication. According to Andrea, a paper with a big innovation allows to dream with high impact journals. But if the step taken by the researcher, while interesting, is small, it may be worth choosing a lean shape.

"The solution may be to produce the so-called short communication and put all the focus on finding. This makes it easy to capture the editor", says.

The maxim attributed to Ernest Hemingway, according to which a writer should "cut out all the rest and concentrate on the essential," helps prevent accidents in scientific writing. A common mistake pointed out by the partners of Publicase is the use of what they call "suicidal phrases" in articles. "It happens when the author decides to relate that other articles have already reached the same conclusion. If the editor concludes that there's nothing new he's going to lose interest," says Andrea. "It's more productive to say what the strength of that article is. For example, that he carried out experiments with sick people and not with healthy volunteers, as in previous articles."

Pharmacist and biochemist, Flávia Paina, who has just finished her PhD at USP's Ribeirão Preto School of Pharmaceutical Sciences, hired Publicase to translate her article on the effects of two antibiotics on the hematological system of rats into English. The recommended changes reduced the size of the text. "They recommended that I

remove references that had no direct relationship with my finding. I haven't done the calculation but I have the impression that the article was 30% shorter," says Flávia, who has already submitted the article to a journal.

Another tip relates to the letter to the editor, a type of note of introduction attached to the paper. According to Marcia Triunfol Elblink, it is common for authors to treat the note in a laconic and bureaucratic way. "It's a mistake, because the letter may help save an article from being put away in a drawer," she says. "The author can highlight the result of his research in a more colloquial and daring way than he did in the article," she says. The letter may also avoid the paper falling into the hands of a prejudiced reviewer. "The researcher can ask for the paper not to be sent for evaluation to competitors or opponents, mentioning them by name," says Marcia. Fabio Klamt, a professor of biochemistry from the Federal University of Rio Grande do Sul, was impressed with the introductory letter that Marcia helped him write for a paper his group published in the journal, *Cancer*. "The text presented a powerful defense of my findings and the article was accepted for publication," he says. "I had written: this is the work with the following title. Thank you very much. She suggested a bolder approach: your readers are going to like the article because it says the following..."

The article dealt with the development of a molecular marker for lung cancer. The most important paper of Klamt's career, in his assessment, is not the one in *Cancer*, but a previous one published in *Nature Cell Biology*, the result of post-doctoral research he did in the United States. Then he was helped by his North American supervisor. Now he has asked Publicase for assistance.

The services market for the authors of scientific papers is growing worldwide. Since 2008, the Nature Publishing Group (NPG), which publishes the journal, *Nature*, has offered a paper editing service. NPG Language Editing is divided into two categories. With the Gold service the text is reworked by two editors who are specialists in the subject and reviewed by two other professionals. With the Silver service one less editor is involved in the process. NPG does not do translations and makes it clear that the service does not imply any commitment that the article will be accepted by the publisher's journals.

Another example is the North American company, American Journal Experts (AJE), which has a network of PhDs in various fields of knowledge. AJE started working in 2004 with an emphasis on editing, translating and reviewing articles written by researchers whose native language is not English.

Today it provides a wider service, such as the recommendation of periodicals suited to each type of article and even a simulation of peer review, in which the paper is submitted to a specialist who tries to anticipate

the criticisms the reviewer may make. "Our recommendations allow the author to make changes in the manuscript and increase the chances of acceptance," says Lisa Pautler, a director of AJE. The company translates manuscripts into six languages, but translations from Portuguese into English are the most requested, according to Lisa. "The texts are translated by a specialist editor in the area and then reviewed by another researcher, whose native language is English." Elsevier, one of the biggest publishers of books and scientific journals, with headquarters in the Netherlands, has created an international workshop program for editors of scientific journals and for authors of articles that has been taken to various countries. "The events form part of the partnership of Elsevier with client research institutions," says Ana Heredia, editor of scientific publications of Elsevier in Brazil. Just last year, it promoted these workshops in Costa Rica, Panama, Colombia, Peru, Chile, Uruguay and Brazil.

In North American universities it is common for research groups to be helped by specialists in scientific writing, who help them format articles, refine translations, prepare figures and organize references. Emilio Moran, a director at the Anthropological Center for Training and Research in Global Climate Change at the University of Indiana, says that it has been important for the productivity of his group to have the help of a professional who is even responsible for drafting the final version of scientific articles. "She helps on various areas, such as grammar and a review of the English, but it's common for her to take the researcher's draft with his general ideas and transform it into a scientific article", says Moran, who has even shared the services of this writer with the 2009 Nobel prize winner in Economics, Elinor Ostrom, a professor at the University of Indiana. "Those who produce a lot end up not having time to take care of the details of preparing an article." Support services do not exempt researchers from learning how to write. Moran himself lectures on a subject that, as the final piece of work, demands from post-graduate students an essay on a real project that is to be presented to the funding agencies.

North American universities have been investing in writing centers and editing offices, initiatives that help everyone from graduate students interested in developing their writing talent to researchers who are looking to increase their chances of being published. "Among the objectives is to prepare professionals to have greater autonomy when it comes to arguing their ideas in a scientific text in English, which is in fact the native language of many of those who resort to the services of these centers", says Sônia Vasconcelos, a researcher on the Education, Management and Dissemination Program

in Biosciences at the Institute of Medical Biochemistry at the Federal University of Rio de Janeiro and author of a PhD thesis on the language barrier in scientific communication.

In Brazil this type of initiative is beginning to thrive, but for the time being it is restricted to the most pressing problem, which is the translation and revision of English. Such is the case with Unicamp's Writing Center, an office set up in 2006 to help researchers from the humanities and engineering areas publish their work in other languages. A total of 1007 works have already been translated and reviewed by the office. "It was diagnosed that researchers from the physics, chemistry and medicine areas published abroad a lot and didn't need help. Our focus was on those areas where there is less international penetration," says Alcir Pecora, a professor of literary theory at Unicamp and coordinator of the Writing Center. The balance of the work was very positive in the engineering area. The School of Food Engineering represents 23% of the articles translated, followed by the School of Agricultural Engineering, with 14%. In the humanities and social sciences fields, on the other hand, the result was more modest. Professor Antonia Bankoff from the School of Physical Education at Unicamp is a user of the Writing Center and praises the agility with which the translations are done. "I managed to publish more and have a larger number of studies accepted for international congresses," says.

The two office's employees who are trained to help researchers select good journals only do so when they are asked. "We'd like to do more, but assessing the quality of the translations takes up most of our time," says Pecora. Unicamp is preparing to strengthen its strategy for improving the scientific writing skills of researchers. This year it is going to offer new workshops with Publicase and a seminar with Carl Schwarz, director of publishing house, Elsevier, in order to reach post-graduate students. "The intention is to expand the initiatives to ever larger audience within the university," says Edgar de Decca, vice president of Unicamp.

USP is arranging a wide-ranging program to help researchers publish more and better articles. According to Sueli Mara Soares Pinto Ferreira, technical director of the Integrated System of Libraries (SIBi), in principle the initiative will have two fronts. One is the promotion of seven workshops this year in a partnership with the Research Dean's Office and organized by Publicase. The second is the availability of computer tools that are capable, for example, of helping researchers organize the bibliography of their articles and format it. In the future, USP will acquire software that helps the editors of the university's scientific journals detect plagiarism, in addition to automating the editorial flow and generating access and downloading statistics. It should also offer translation and grammar

reviewing services, in addition to creating a writing center. "And when everything is implemented we're going to also invest in tools that will help us measure the impact of the scientific production generated by these initiatives," says Sueli.

Within its internationalization program, the Paulista State University (Unesp) created an edict that continuously offers financial help for the review and translation of articles and the eventual payment of costs for publishing in international scientific journals and at congresses. The initiative started in 2001 and since then almost 200 teachers have used the support every year. Of the 2,000 articles translated or reviewed 75% were accepted for publication. According to Professor Erivaldo da Silva, who coordinates the program for Unesp's Research Dean's office, 90% of the translations or reviews are for English. In the universe of requests, 65% are for complete translations and 35% for reviews. "Requests for complete translation come mainly from the engineering and humanities fields, while in areas like physics and chemistry it is more common to have requests for reviews," he says. Carlos Alberto Sampaio Barbosa, a professor in the History Department of the Assis School of Sciences and Literature, used the edict to translate a chapter of a book on the repercussion of the Mexican Revolution in Brazil into Spanish. "The impact of a publication in English or Spanish languages is much greater. And in my area, few colleagues from abroad read Portuguese," he says.

The use of translation and language review services is common among Brazilian researchers, since mistakes in the text usually serve as an argument for the papers to be rejected, regardless of their merit. Carlos Eduardo Ambrosio, a professor from USP's School of Zootechny and Food Engineering in Pirassununga, has already used the services of Publicase and American Journal Experts to review his scientific papers in English. The expedient has a double objective: to avoid questions about the correctness of the language used and to help him in his work as editor of the national scientific journal, *Pesquisa Veterinária Brasileira*. "It's good that a native English speaker points out the mistakes. Editors often don't do this and you end up not knowing if there's really a mistake or if it's prejudice," he says. Ambrosio did part of his Master's degree in the United States and is still studying English. "But I still make mistakes," he says. "There are people who don't like to talk about this, but I didn't have a bilingual education. That's the Brazilian reality. Anyone who can express themselves well in English generally has had the chance of spending a good length of time abroad. That's why I intend doing post-doctoral studies abroad," says the researcher, who at 34 is a full professor at USP and received a grant from FAPESP's Young Researchers in Emerging Centers program.

Careful translations and sound arguments are not

enough, as can be imagined, for transforming a redundant or incorrect manuscript into something that can be published. Gilson Volpato, a professor at the Institute of Biosciences at Unesp in Botucatu, the author of various books on scientific writing, and who has been giving courses and workshops in this area since 1986, draws attention to the vices of the Brazilian scientific community that compromise the quality of the production in various fields. "The problem begins with the research projects themselves. If a project's not innovative and doesn't have a solid theoretical basis it's impossible to create high impact articles later," states the professor, who has given an on-line course in scientific writing on Unesp's webpage (available at http://propgdb.unesp.br/redacao_cientifica/index.php). Scientific quality needs innovative ideas, methodological strength, obvious results and impeccable presentation, states Volpato.

He notes that some national journals, even when published in English, publish articles of poor quality – and this hinders the learning of young authors. "Brazilian journals need to take a leap forward in quality. In certain areas the journals are reasonable. But in others they publish articles with small samples, wrong conclusions and a regional slant that would be unacceptable in other places." The most worrying thing, says Volpato, is the so-called repetition culture. "I've seen supervisors suggest a student shouldn't study a particular subject because nothing has been published about it. There's no entrepreneurial culture in Brazilian science, in the sense of seeking out the new and unknown," says the professor. He says that researchers have everything to gain if they try to publish in international journals. "And they have to write in English, because in Portuguese few people are going to read it and the researcher will not receive a critique by renowned scientists, which is what leads to improvements in his work," he concludes.

Guide for writing a good article

1) Planning it in the project phase

Choose journals in which your research could be published and analyze articles published by researchers with the same profile you have – after all they experienced the same difficulties you will face when it comes to publishing. Study the demands of a work of this type and try to adjust your research project to meet them.

2) Organizing your ideas

Before beginning to write, analyze the data and see what conclusions you can actually draw. Present it to your colleagues orally and do this until you see that your work is clear. First, write the abstract to ensure that you master the set of data and are ready to start writing.

3) Writing it from back to front

Begin with your conclusions, highlighting what is new in the article. Then choose the figures and write up only the results that you used to arrive at your conclusions. Then start on the procedures and discussion. In the end write the introduction, which must justify the objectives. Finally, deal with the title.

4) Taking a lot of care with the letter to the editor

Presenting the article to the editor is a chance to use a less formal approach for defending the conclusions of your article and winning over the editor; it should not be dismissed as a mere disclosure tool. Many researchers waste this chance when they present their papers in a bureaucratic and uninteresting way.

5) Learning from failures

If the manuscript is rejected try and discover the reasons. Feedback about the failure is essential to be able to correct the article's mistakes or at least not to repeat them in the next research. This expedient also helps improve your writing and to learning how to choose the appropriate periodical.

Make my words yours

When plagiarism is linked to difficulty in writing

Recent cases of scientific plagiarism are generally associated with bad conduct and the pressure to publish at any cost, but there is at least one aspect of the problem that is linked to the researchers' ability to write. In 2007 a case of plagiarism involving an article published in the journal, *Nature*, brought the issue to the fore. The accused, a group of Turkish scientists, defended themselves in *Nature* itself, by arguing that they had indeed copied extracts from the text of other studies in English but that they did not consider they had committed plagiarism. They argued that the extracts copied were used in the introduction of the article, not in its conclusions. "For those like us, whose mother tongue is not English, using attractive sentences that have been published in other studies in the introduction of our texts is not unusual", said Ihsan Yilmaz, one of the authors of the study.

In the case of little room for discussion when the plagiarism is linked to copying data, it enters a gray area when it is a contextual loan in a scientific article. Generally speaking, it is considered that a reference to the text by another person must be placed between inverted commas, or paraphrased, which consists in explaining the idea of the other person in one's own words. "It just so happens that it may be very difficult to develop ideas in your own words in a language that is not yours. This affects the Chinese a lot, because their linguistic structure is very

different from Anglo-Saxon”, says Sonia Vasconcelos, who studies scientific plagiarism and who dealt with the problem last December at the 1st Brazilian Meeting on Integrity in Scientific Research and Ethics in Publications, held in Rio de Janeiro and São Paulo. “With their difficulty in writing and being afraid of misrepresenting the original idea, many researchers become slaves to the words of others. In addition to the undesirable exposure that a possible accusation of plagiarism might bring these authors, many of them end up becoming academic writers who are dependent on the expressions of others and copiers of their argument patterns.” Sonia emphasizes that establishing rules and using software to detect copies of extracts, as most of the scientific journals do, is not enough to prevent the problem. “We need to prepare researchers who have autonomy to argue in their own

language and in English, whether in the context of publications or not. In Brazil, strengthening the development of this skill in our students is also a question of sovereignty,” she says. In an article published in January, ethics specialists Elizabeth Heitman, from Vanderbilt University, and Sergio Litewka, from the University of Miami, recommend that North American scientists should change their strategy for preventing plagiarism in the works of foreign students who have little mastery of English. The suggestion is to invest in the practice of writing skills, instead of merely publishing the rules.

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