

Santos López Leyva, Aida Alvarado Borrego, Ana Bárbara Mungaray Moctezuma (2014). *La comunicación de la ciencia a través de artículos científicos* (2^{da} ed.). México: Universidad de Occidente ISBN: 978-607-7834-26-7, Ediciones del Lirio ISBN: 978-607-8371-38-9, 215 pp.

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The writing trade is no easy task. Wanting to do it is not enough, nor knowing the techniques on orthography or syntax. He who writes has to have a clear purpose to pursue and establish the boundaries they want to set. One can write as an intimate recreation, like in poetry or in a diary; to inform the masses, like a journalist would do in several ways or to give a specific knowledge as a result of an investigation. *La Comunicación de la Ciencia a través de artículos científicos* by Santos López Leyva, Aida Alvarado Borrego and Ana Bárbara Mungaray Moctezuma, is written in this last area.

The book first saw the light in 2011 and its second edition appeared in 2014. In both editions, special guests gave their points of view in the first pages, leaving a testimony on the importance of the text; likewise, an introduction by co-author Santos López Leyva. The second edition was revised and enhanced by incorporating one more chapter, which refers to the ways to quote and present bibliographical evidence.

The book is composed by 11 chapters, where essential topics on article publishing are mentioned with an emphasis in scientific articles, to be published in the index of renown magazines both national and international.

The authors are three renowned teachers and researchers, seasoned in the avatars of scientific article publishing. Namely, this book is a product of readings, theoretical review, conceptual and methodological, but above all on the academic and researching practices in their respective land of expertise. I highlight, especially, Dr. Santos López Leyva's role in the making of the book, spark plug of this and many academic projects, such as Global Development and International Relations Network.

In the first part (written in three chapters), the topic approached are spaces of scientific communication, distribution and outreach of science, and science writing. As the book indicates, articles can have different levels and characteristics: those easy to read and comprehend are journalistic, while the more complicated ones are focus in a certain field of knowledge, social sciences, exact or natural sciences, that is to say, scientific articles.

The binominal disclosure-outreach is often referenced as something hard to tell apart even by some academics and researchers. That is why the text clarifies it in page forty three, disclosure, as the authors say quoting the Royal Spanish Academy, is "to spread or divulge knowledge, news, attitudes, customs or fashion". The focus is in the fact that disclosure is directed to experts in a certain field of scientific knowledge. Outreach, on the other hand "... refers to the act and effect of divulging, which means to publish or to put something within reach of the general public". That said, outreach happens when knowledge is adapted to make understandable to non-specialists that have a special interest in scientific knowledge. This topic is a part of chapter two, where its coordinates were established in chapter one, named: "Spaces of Scientific Communication", where the authors propose:

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The act of scientific communication involves a research process, inquest, creation and production of the reality the researcher is studying in order to create a structure to the analysis and reflection on the studied phenomenon to discuss and create a practical and theoretical view contributing to the development of scientific knowledge (p.31).

A key concept in this part is "Science Literacy", which having its origins in the fifties it has nowadays gained popularity. But what do we get by Science Literacy? The authors have three ways of explaining it:

- Practical science literacy, which allows to utilize day-to-day knowledge in order to increase life conditions and knowledge on ourselves [...];
- Civic science literacy that allows people to participate socially, with scientific criteria, on political decisions
- Cultural science literacy, related with levels of nature of science, with the meaning of science and technology and it's incidence in social configuration (p.55).

All the aforementioned, while commendable, faces various circumstances: the delay between production of scientific knowledge and it's spreading, Scientifics being reluctant to make easier the language of their field of knowledge and the low level of curiosity and lack of reading among the general public, especially Mexicans.

The first part ends in chapter three, where the importance of "Scientific Writing" is analyzed, to reach not only specialized readers and experts on the topic in question, but the public interested, the general public. To emphasize the importance of scientific writing, the authors quote Mari-Mutt:

[...] Scientific Research and publishing a scientific article are two intimately related activities. Some people think research ends when results are obtained, analyzed, reports are turned in or when the research is presented in a professional meeting. Nevertheless, scientific research really ends with the report is published; only then is when your contribution becomes a part of scientific knowledge. Some people go beyond this by suggesting that research is over when the reader understands the article; this meaning publishing the work is not enough, it is necessary to have the audience understand its content (p. 69).

According to the same author scientific writing has to meet three requirements: handle the language, focus on the work, schedule time to revision and understand and apply the core principles of scientific writing (p.70). The objective of scientific writing is key to science outreach and disclosure and, as Mari-Mutt mentioned, the research process ends only when the results of said research are published, known, and debated. Nevertheless, it does not always happens that way for three main reasons: one being that many research products get lost in researcher's file cabinets or computer files, without being submitted to reader scrutiny; the second, because a practice well-known in the academic world is to mistake scientific knowledge with confusing, stilted writing. As if the less understandable it is, the more "scientific", which is clearly wrong.

The authors point out the importance of writing in a scientific article with these three ideas:

The language in scientific writings should be capable of transmitting findings and research results to the community; this meaning that during the writing process of a report or any other document, the people who will read it must be kept in

mind in a way that language creates understanding and relateability to the knowledge emitted in those reports (p. 77).

In sum, the book's authors put one of the most important links in knowledge production under the spotlight: clear writing, with a "hook", that preserves the scientific essence of the research.

In the second part of the book – not explicitly segmented, but implicitly- the topic of scientific articles is described and analyzed. This is the fundamental core of the text. Following Rogel, the authors explain that: A scientific article is a text that highlights the main results of academic research, concluded or in progress, and after a rigorous inspection by experts is considered an original, relevant contribution contributing to the development of scientific knowledge (p. 79). "Originality", "precision" and "order" are key elements according to the authors, following Campanario (p. 82).

"Structure" is essential in scientific articles. The more traditional approach suggests the following elements: abstract, introduction, materials and methods, results and discussion (AIMRAD for its acronym in Spanish). Other variations of this structure are presented in the text and it is assumed that they are valid in both social and experimental sciences. On that matter, I wish a subsequent edition develops it more in depth. In the usual sections of an article on disclosure and outreach, the importance of contextual and theoretical aspects remains unanswered.

From the core parts of scientific articles (abstract, introduction, methods, results, discussion and conclusions), the latter two can be highlighted, in which during production don't get as much attention by many authors. There the importance of the book's suggestions, following Rogel:

- It is necessary not to confuse a results discussion with a work's conclusions, nor repeating an abstract in its entirety;
- Depend on the results and their analysis, taking into account objectives and theoretical framework;
- Conclusions must be obtained from something other than solely registered data;
- it is important to know that this is the part where the main contribution of the research is mentioned, and
- the pending research schedule is also revealed (p. 100).

Scientific articles also include the following: title (an inviting one), writers or co-writers (displayed order is relevant), key words ("generally nouns"), acknowledgements, bibliographic references, annexes, tables and graphics.

References are important because of their content and imply a development technique. The book emphasizes three models that are not the only ones: APA, Chicago Manual of Style and Modern Language Association. This is explained from page 113 to 132 and it is worth reading since it clears up many points that often remain unclear in Research Methodology courses.

To publish a scientific article is not a result or product of good intentions or an act of improvisation of a proud author, there is a "manuscript preparation process" that implies opening with a "writing plan" for the article. This point is shown in chapter 8 (p. 134-145) and completed in chapter 9, which describes the "Elements of article publishing process" (p. 147-161) offering a number of suggestions on the matter.

Publishing implies being clear on which magazine to release a scientific article. In chapter ten, the writers describe and analyze "Scientific Publications in quality rates". In chapter ten, the writers describe and analyze "Scientific publications in quality rates". As we know magazines can be arbitrary, non-arbitrary or indexed; this last binominal is a synonym for quality. The authors present the characteristics of six international databases, some foreign like Information Sciences Institute (ISI), SCOPUS and Scientific Electronic Library Online (SciELO for its acronym in Spanish); and some Mexican like the Latin American, the Caribbean, Spain Scientific Journal Network (REDALyC for its acronym in Spanish), Regional Information Network for Scientific Research Magazines (LATINDEX) and the Science and Technology Index for Mexican Scientific Research Magazine (CONACYT).

The book wraps up with a chapter on "Publishing a Scientific Magazine", made out from interviews made to indexed scientific magazine editors. The chapter comes in handy for those in process of creating a magazine and also for those already existing and circulating. This reading gathers experience on the secrets of arbitration, the search for quality in scientific research and the diverse mechanisms to have the magazine meet quality standards or remain within them.

Finally, in a country like Mexico, where every day hustle and bustle to bear with life is overwhelming, motivating reading and writing is not a disposable effort. That is why every book, every reading is good news. Said this, *Science communication through scientific articles* becomes an important contribution on the matter in Mexico. On one hand, it worries about the job of the "enlightened" who need to show their scientific findings; and on the other hand, on Science Literacy, where the interested public is the special guest in the knowledge society.

The book's contents answer each detail scholars and researchers face while trying to transcend the boundaries of knowledge with scientific publications. The text is a combination research methodology with effective tactics researchers should follow to enter the world of Scientific Quality, which manifests in disclosure and outreach in both written and digital media. Therefore, the co-authors deserve honest commendation and to have their work acknowledged when it is read and put to practice, also in the writing of a book and scientific articles, for some say the best homage to an author is to read, divulge, share, and in this case, to learn from him and to put the knowledge to practice.