




Guest Editorial:




The Relevance of Title, Abstract and Keywords for Scientific Paper Writing


Débora Cristina Ferreira Garcia¹

 <https://orcid.org/0000-0003-3692-6588>

Cristiane Chaves Gattaz²

 <https://orcid.org/0000-0003-4603-3441>

Nilce Chaves Gattaz³

 <https://orcid.org/0000-0002-6893-3822>

Empresa Brasileira de Pesquisa Agropecuária, Embrapa Instrumentação, Laboratório de Aplicação de Precisão,
São Carlos, SP, Brasil¹

University of Texas at Austin, IC² Institute, Austin, Texas, USA²

Empresa Brasileira de Pesquisa Agropecuária, Embrapa Meio Ambiente, Jaguariúna, SP, Brasil³

Initially, we would like to thank the editorial staff of the respected Journal of Contemporary Administration (RAC), especially professor Wesley Mendes-Da-Silva, the editor, for the trust and the invitation. This editorial aims to address a relevant issue for researchers in general and more specifically for those dedicated to the business field, as well as for scientific journals, authors and readers. Our objective is to discuss the importance of titles, abstracts and keywords for articles that we publish. By providing the first contact of the readers with the texts, these initial components of any scientific publication are fundamental tools in determining the visibility of a work.

The discussions that involve scientific writing arouse our interest first because of the successes and difficulties that we have faced in different stages during our practice in academic environment, marked by the elaboration of projects and research reports from the undergraduate research to the postdoctoral research, the production of academic articles and their submission to national and international journals. In addition, the accumulated knowledge as referees and reviewers of this type of textual production has awakened in us the desire to share such knowledge with those who dedicate themselves to research. We believe that some suggestions and recommendations can improve the presentation quality of researchers' works and, as consequence, increase the dissemination capillarity of their research results.

Effective scientific writing has become a subject of great relevance nowadays. Journal of Contemporary Administration, by dedicating its most recent editorials to address pertinent issues to business research, shares this commitment to bring to its authors and readers more information to help them to understand current demands of science and how this is reflected in the production and dissemination of research.

This concern can be explained in part by the increasing demand from research and teaching institutions, and even from some companies, for researchers linked to them to publish their work in journals. According to the report *Research in Brazil*, produced by Clarivate Analytics for Coordination for the Improvement of Higher Education Personnel (CAPES), Brazil is the 13th largest producer of research publications in the world and its contribution increases annually (Cross, Thomson, & Sibley, 2019). In 2016, Brazilians published about 2.3 million scientific works in reputable journals, as classified in the Scopus database (Pierro, 2019).

This large volume of publications submitted to high impact journals corroborates the need for effective communication in scientific papers. The increasingly rigorous evaluations of editors and reviewers require greater care and attention from the authors regarding the content of the text and the way it is written.

In addition, research that fosters the sharing of information and data among several fields of knowledge with the objective of solving complex problems (Mendes-Da-Silva, 2019a, 2019b), so common to the business field, demands that communication between the different actors involved in the project should be simple and objective. Scientific writing needs to be understandable to different stakeholders in order to contribute to the production of results that positively impact the quality of life of citizens, with rigor to define gender issues and more.

Scientific paper publication moves science, because new research evolve from previous ones, i.e., they are based on previous research to reaffirm, question or refute them. The consultation of socially constructed knowledge allows grasping new discoveries about a given phenomenon; determining the existing gaps; and/or using this knowledge to develop tools that meet the society's demands.

In addition, the same publications promote the scientific world. Papers legitimized by society guarantee their authors social and professional and increase opportunity for professional and academic advancement. The institution that encourages research also shares the credits of this merit. Social prestige, reflecting their successful academic outputs, increases the likelihood of receiving funding and resources for executing new projects (Aguinis, Suárez-González, Lannelongue, & Joo, 2012).

However, it is not enough to publish. Research only achieves its goal when it is shared, i.e., when an author finds the audience who values his ideas, findings. Today, reader interest can be measured in terms of the number of views that an article receives. Further, the validation of a research, its legitimization and acknowledgement, depends on the reader's judgment related to the text which can be measured by the rate and, most importantly, by its citation in other works.

Given the benefits of effective scientific communication, the growing number of journal's publications and the tendency to make them available in digital media¹, how can scientific articles reach the largest number of readers, and specifically, the audience who will find the work most salient? The need of this document to be found easily in the databases of both printed and digital texts is preeminent

among the several factors that contribute to the readers' search for articles. Careful elaboration of title and abstract as well as weighted selection of keywords are fundamental for the texts to be retrieved by search engines and finally reach their potential readers. The knowledge of search expressions for scientific papers is important for the text visibility (Garcia, Gattaz, & Cruvinel, 2019; Rossetto, Bernardes, Borini, & Gattaz, 2018). Knowing the characteristics related to the high citation index of an article is important, not only to authors, but also to the publishing journals, so as to "improve the journal's credibility, relevance, and financial independence" (Paiva, Lima, & Paiva, 2012, p. 509).

Platforms such as the Web of Science, Scopus, Google Scholar use key search words or phrases to help readers locate documents. Most information retrieval systems select documents from a given search expression through word counting within the articles. These results appear in order of classification of the articles and authors most viewed and cited, considering the number of references linked to them and their relevance to the literature on the subject treated.

Well-crafted searches are very fruitful for authors of systematic reviews, a theme discussed in previous edition of *Contemporary Administration Journal* (Volume 23, Issue 2). Such success depends on the proper keyword selection to access the State of the Art.

After finding a journal article, the user is usually provided its title and abstract, to inform the reader's decision whether to access full text. Although the readers evaluate many parameters in the process of recognition and citation of a paper, it should not be forgotten that everything begins, with these three initial components: the location of the document, the screening of an attractive and understandable title, and the reading of a clear and concise abstract. These elements, in some way, need to engage the reader and arouse interest in the research details contained in the comprehensive work.

It is possible to imagine available scientific publications as a large iceberg in which the most visualized, quoted and recommended articles are located on the top. Without detracting from the merits of these publications, it can be inferred that many articles with good ideas, located in the large submerged base, are essentially unseen, due to the neglect or underutilization of the researchers to effectively leverage these three elements.

Following are some successful strategies for the elaboration of title, abstract and keywords, to pique reader interest and increase the chances of being cited in other technical and scientific works.

Title

This is the first and, in many cases, the only information the reader has during his literature search on a particular subject, which, if poorly presented, may fail to engage interest, or even alienate the readers.

To attract and hold the reader's attention, the title should have several key characteristics: it should be comprehensible and attractive to the rapid scan; be short but informative; must announce clearly, briefly and objectively the content that will be addressed in the full text (Hairston & Keene, 2003; González Aguilar, 2017); must, be accurate and unambiguous to avoid multiple interpretations or confusions. In face of countless reading options, readers will certainly reject haphazard titles.

One general rule is to avoid scientific terms, as well as city names, in titles and López Hernández, Torres, Brito and López (2014) suggest that authors avoid abbreviations and technical details. Abbreviations, especially the obscure ones, might distract the reader, hindering communication. Technical and hermetic language, in turn, narrows communication to members who belong to a specific discipline or field.

Ideal extent of a title is a debated and controversial theme. Some researchers like Jamali and Nikzad (2011), Paiva, Lima and Paiva (2012) and Subotic and Mukherjee (2014) consider short titles to

have advantage in the number of downloads and citations compared to the longer ones. On the other hand, research developed by Habibzadeh and Yadollahie (2010) and Jacques and Sebire (2010) claim a positive relation between length article's title and citations rate. Jacques and Sebire (2010) emphasize that titles with the highest citation rates have more than twice as many words as titles with lowest number of citations. They explain that longer titles tend to be more encompassing, increasing the probability of being identified by electronic search engines. They add that titles which provide a clearer description of the study and its findings are probably considered more relevant in the initial screening process.

Yet, it is important to highlight that the title's quality does not depend on the number of words or characters that compose it, but for its ability to describe the theme or content of the published paper (Bavdekar, 2016). Many journals limit the title's length, so it is advisable to carefully read and observe the journal's author guidelines when submitting a work for publication. In this respect, Contemporary Administration Journal adds that empirical work should have titles suggestive of the main result of the published study.

Some authors advocate the use of provocative titles to help catch the reader's interest. However, Hatley (2012) cautions against using puns, humorous or ironic tones in titles, claiming that such characteristics may not be well accepted by areas of knowledge that require more seriousness in their writings. In addition, this strategy may reduce the scope of the article, insofar as both non-native readers and search engines may discard it. Humor is most often based in cultural context, and the research author should seek a wide audience that spans cultural limitations.

Developing several potential titles for the same work can be quite useful, because it allows observing the best aspects of each version in order to craft a more elaborate and effective title.

Abstract

After the titles, the abstract is perhaps the most frequently read part of a scientific paper. In it, the reader wants to find a text of approximately 100 to 250 words that synthesizes an article's main points. There are two types of abstract, informative and indicative (Pereira, 2011). Informative abstracts encompass all parts of a scientific work, and are often used in original research reports and systematic reviews, to lead the reader to seek the more detailed information of the full paper. Indicative abstracts are of simpler construction, used to express opinions or a discussion of facts, crafted to provide a context by which the reader can approach the content.

From the formal point of view, abstracts can be structured or unstructured. The latter are more traditional, i.e., they present the main information of the article in running text usually composed of a single paragraph. On the other hand, in the structured abstracts, journals determine the parts that should be contemplated, which are then described by the author, as can be seen in the abstract of the article "Competitiveness: business model reconfiguration for innovation and internationalization":

Purpose

- The purpose of this paper is to reflect on competitiveness by using the business model concept and to understand the need to adapt business models to changes in the environment.

Design/methodology/approach

-Using Catalonia as a context, the paper derives recommendations by presenting and analyzing examples of companies, referred to as "new generation companies," that have innovated in their business models. The case studies illustrate the contributions of the business model notion to the competitiveness debate.

Findings

-Reviewing the history and contemporary practice of Catalan firms, examples of "new generation" companies are analyzed to derive recommendations for managers seeking to reconfigure their business models to support innovation and internationalization. Since business

models sit at the core of competitiveness, they must be the focus of managers aiming to create efficient firms that foster sustained competitive advantage.

Research limitations/implications

The analysis is based on a small number of case studies.

Originality/value

-The business model approach described in this paper enriches the current debate on competitiveness by focusing the analysis at the level of the firm (Casadesus-Masanell & Ricart, 2010, p. 123).

According to Hartley (2008, 2012), there is a strong movement towards the use of structured abstracts in journals in medicine and psychology. The structured abstract contains more information than traditional abstracts and presents this information in a form that is easily accessible to readers, editors, and reviewers. However, as Hesson (2013) asserts, this more rigid structure may hinder the communication in abstracts related to qualitative and conceptual research. The choice of whether to develop a structured or unstructured abstract is not an author's option, but is decided as part of a journal's editorial policy.

Synthesizing an article's content can be complex. Authors may find some assistance in Bhatia's (1993) findings on the rhetorical movements present in most academic. According to the researcher, abstracts should contemplate four movements and each of them must answer a specific question, as can be seen below:

1. Introducing the purpose (What did the researcher do?): The author indicates research intent, thesis and hypotheses. It is possible to find research goals and the problems that the author wants to address.
2. Describing the methodology (How did the researcher conduct the research?): Brief presentation of the procedures, methodologies and data used in the research.
3. Summarizing the results (What did the researcher discover?): One of the most important movements of the abstract, in that it presents conclusions, discoveries and solutions to the problems initially pointed out.
4. Presenting the conclusions (What did the researcher conclude?): Results interpretation and implications and/or applications of findings.

Further, it is important for authors to ensure that objectives and problems indicated in movement 1 are contemplated in movement 3(results), because:

There is nothing stranger than finding a manuscript in which purpose and conclusion are at odds. Usually, the initial providence of an evaluator is to check whether the goal and conclusion make sense. If they do not match, he gets poorly impressed and tends to recommend his rejection (Pereira, 2013, p. 707).

In developing a concise outline of the paper, the should avoid the use of abbreviations, unless a very extensive term is used repeatedly in the abstract. In such cases, the term should first appear in its extensive form, followed by the abbreviation in parentheses. Similarly, quotations and references should not be included in an abstract, but rather explored in detail within the article's text.

Keywords

Keyword selection aims to facilitates the efficient retrieval of text content for readers. As fundamental tools for indexing databases, they act as a gateway to text. In spite of this critical functionality, many authors undervalue this scientific writing stage. Selecting the most salient keywords significantly increases the chances of a document being retrieved by an article's most pertinent readers,

and consequently help promote an article's visibility within the publications iceberg. In developing this resource, the author must first identify words and concepts used in the paper that highlight the main topic, the techniques and methodologies used. It is important to consider which terms would be used by potential readers during document selection, remembering that different groups of readers may use various terms to describe the same information.

Russel (2004) recommends that authors conduct prior research on other good works that address a similar theme. This technique makes it possible to observe which terms are considered more efficient to represent such studies. In addition, it subsidizes the article's insertion into a particular line of research. An article's bibliography or list of references will often provide a valuable starting point for this review.

Lebrun (2007) classifies the keywords into three categories: general, intermediate and specific. Researchers looking for articles that address aspects and phenomena similar to their research will use more specific keywords, while those belonging to the same area but unfamiliar with a particular theme will certainly use intermediate terms. On the other hand, more general keywords are used, for example, among readers who are interested in the subject but might be immersed within a different scientific background or discipline. Therefore, authors need to define essential keywords for the paper and consider the audience he wishes to achieve. If the goal is to enlarge readership across a broader audience, it is advisable to merge the different types of keywords.

The most cited RAC article, written by Maria Tereza Leme Fleury and Afonso Fleury, entitled "*Construindo o conceito de competência*" (2001), uses two keywords. The first one, competence, corresponds a broad theme, associated, as the authors point out, "to different instances of understanding" (p. 183, our translation). On the other hand, the second keyword, people management, determines the approach given by the article, i.e. relate the notion of competence to the strategy and organizational learning processes. The option for these terms guarantees greater comprehensiveness in relation to readers.

Other issues should be considered during keywords' elaboration. Authors should avoid newly created terminology, unusual abbreviations, and slang.

Further, some vehicles follow certain rules, and it is essential to read a journal's author guidelines prior to submission. In medicine, for example, most journals recommend that keywords be selected from a list of terms, the Medical Subject Headings (MeSH), developed by the US National Library of Medicine. This procedure ensures the use of **common vocabulary** to index a document's content and, at the same time, simplifies bibliographic searches. RAC, in this sense, started to use JEL codes to facilitate the articles search.

On the other hand, some journals prohibit the use of keywords that also appear in the title, in the theory to diversify rather than duplicate word choice, and thus increase the chances of an article's future recovery.

Finally, careful and strategic choice of keywords should consider the synonymy of the content, in the body of the text. It becomes the repetition of something existent.

Final Considerations

In today's information society, knowledge sharing is essential for the development of all scientific advancement. In companies, the search for knowledge generates innovations in products and services so essential for the survival of these institutions in the increasingly globalized and competitive market. In the academic world, the dissemination of research through publication promotes the scientific progress and helps ensure the development of new research, both by adding to previously constructed knowledge and by providing a basis for (and metrics against) the financial investments that make new projects possible.

These benefits are achieved through the visibility, appreciation and legitimacy of scientific papers, currently measured by the number of views, downloads, shares and citations in other researches. Among the different factors involved in the process of positive recognition of a research, we highlight the importance of titles, abstracts and keywords. These components establish the readers' first contact with the research and inform the decision whether to read or discard a text. Therefore, dedication to writing each of these elements is as important as elaborating the article's more detailed sections and most insightful points.

Note

¹ Plan S, for example, is an initiative of the European Union with development agencies in 14 countries that establishes immediate publication with open access, from 2020, of articles whose research has received public funding (Marques, F. (2019). Como sobreviver sem assinar revistas científicas: Ferramentas digitais e redes sociais ajudam estudantes e pesquisadores a encontrar artigos na internet (p. 35). *Revista Pesquisa Fapesp*, Ano 20, (278), 34-37. Accessed on April 14th, 2019, de <http://revistapesquisa.fapesp.br/2019/04/15/folheie-a-edicao-278/>

References

- Aguinis, H., Suárez-González, I., Lannelongue, G., & Joo, H. (2012). Scholarly impact revisited. *Academy of Management Perspectives*, 26(2), 105-132. Retrieved from https://www.utdallas.edu/~mxp059000/documents/AguinisAMP12_PengCite139p118_New4p126.pdf
- Bavdekar, S. B. (2016). Formulating the right title for a research article. *Journal of the Association of Physicians of India*, 64, 53-56. Retrieved from http://www.japi.org/february_2016/08_aow_formulating_the_right.pdf
- Bhatia, V. K. (1993). *Analysing genre: Language use in professional settings*. New York: Longman.
- Casadesus-Masanell, R., & Ricart, J. E. (2010). Competitiveness: Business model reconfiguration for innovation and internationalization. *Management Research: Journal of the Iberoamerican Academy of Management*, 8(2), 123-149. <https://doi.org/10.1108/1536-541011066470>
- Cross, D., Thomson, S., & Sibclair, A. (2017) *Research in Brazil: A report for CAPES by Clarivate Analytics*. Retrieved from <http://www.capes.gov.br/images/stories/download/diversos/17012018-CAPES-InCitesReport-Final.pdf>
- Fleury, M. T. L., & Fleury, A. (2001). Construindo o conceito de competência. *Revista de Administração Contemporânea*, 5(Edição Especial), 183-196. Recuperado de <https://rac.anpad.org.br/index.php/rac/article/view/152/156>. <https://doi.org/10.1590/S1415-65552001000500010>
- Garcia, D. C. F., Gattaz, C. C., & Cruvinel, P. E. (2019). Information retrieval: A case study on contributions of Greimasian semiotics to semantic computing in agricultural for knowledge management. *Proceedings of the IEEE International Conference on Semantic Computing*, 13. Retrieved from <https://ieeexplore.ieee.org/document/8665607>. <https://doi.org/10.1109/ICOSC.2019.8665607>
- González Aguilar, H. (2017). La redacción del título en artículos científicos – The writing of the title in scientific articles. *Revista Electronica de Veterinaria*, 18(7). 1-9. Retrieved from <http://www.veterinaria.org/revistas/redvet/n070717/071708.pdf>

- Habibzadeh, F., & Yadollahie, M. (2010). Are shorter titles more attractive for citations? Cross-sectional study of 22 scientific journals. *Croatian Medical Journal*, 51(2), 165-170. <https://doi.org/10.3325/cmj.2010.51.165>
- Hairston, M., & Keene, M. (2003). *Successful writing* (5th ed.). New York: Norton.
- Hartley, J. (2012). New ways of making academic articles easier to read. *International Journal of Clinical and Health Psychology*, 12(1), 143-160.
- Hartley, J. (2008). *Academic writing and publishing: A practical handbook*. London: Routledge
- Hesson, J. (2013). *English for research paper: A handbook for Brazilian authors*. Retrieved from <https://www.amazon.com/English-Research-Papers-Handbook-Brazilian-ebook/dp/B00GPT0FXW>
- Jacques, T. S., & Sebire, N. J. (2010). The impact of article titles on citation hits: an analysis of general and specialist medical journals. *Journal of the Royal Society of Medicine Short Reports*, 1(2), 1-5. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2984326/pdf/SHORTS-09-0020.pdf>
- Jamali, H. R., & Nikzad, M. (2011). Article title type and its relation with the number of downloads and citations. *Scientometrics*, 88(2), 653-661. <https://doi.org/10.1007/s11192-011-0412-z>
- Lebrun, J.-L. (2007). *Scientific writing: A reader and a writer's guide*. Boston, MA: World Scientific.
- López Hernández, D., Torres, A., Brito, L., & López, M. L. (2014). Cómo redactar y organizar un artículo científico original. *Revista de Especialidades Médico-Quirúrgicas*, 19(2), 236-243. Recuperado de <https://www.medigraphic.com/pdfs/quirurgicas/rmq-2014/rmq142q.pdf>
- Mendes-Da-Silva, W. (Ed.). (2019a). Editorial. *Revista de Administração Contemporânea*, 23(1). Recuperado de <https://rac.anpad.org.br/index.php/rac/article/view/1309/1332>. <https://doi.org/10.1590/1982-7849rac2019180346>
- Mendes-Da-Silva, W. (Ed.). (2019b). Editorial. *Revista de Administração Contemporânea*, 23(2). Recuperado de <https://rac.anpad.org.br/index.php/rac/article/view/1320/1348>. <https://doi.org/10.1590/1982-7849rac2019190094>
- Paiva, C. E., Lima, J. P. da S. N., & Paiva, B. S. R. (2012). Articles with short titles describing the results are cited more often. *Clinics*, 67(5), 509-513. [https://doi.org/10.6061/clinics/2012\(05\)17](https://doi.org/10.6061/clinics/2012(05)17)
- Pereira, M. G. (2011). *Artigos científicos: Como redigir, publicar e avaliar*. Rio de Janeiro: Guanabara-Koogan.
- Pereira, M. G. (2013). O resumo de um artigo científicos. *Epidemiol. Serv. Saúde*, 22(4):707-708. Recuperado de <http://scielo.iec.gov.br/pdf/ess/v22n4/v22n4a17.pdf>. <https://doi.org/10.5123/S1679-49742013000400017>
- Pierro, B. (2019). Comunicação científica sem barreiras: Comissão europeia e agências de apoio à pesquisa buscam aliados para implantar iniciativa de acesso aberto de alcance mundial. *Revista Pesquisa Fapesp*, Ano 20, (276), 18-25. Recuperado de <http://revistapesquisa.fapesp.br/2019/02/08/comunicacao-cientifica-sem-barreiras/>
- Rossetto, D. E., Bernardes, R. C., Borini, F. M., & Gattaz, C. C. (2018). Structure and evolution of innovation research in the last 60 years: Review and future trends in the field of business through the citations and co-citations analysis. *Scientometrics*, 115(3), 1329-1363. <https://doi.org/10.1007/s11192-018-2709-7>

Russel, A. A. (2004). Calibrated peer review TM: A writing and critical-thinking instructional tool. In S. Cunningham & Y. S. George (Eds.), *The Impact and Invention Proceedings - Invention and impact: Building excellence in undergraduate science, technology, engineering and mathematics (STEM) education* (pp. 67-71). Washington: American Association for the Advancement of Science.

Subotic, S., & Mukherjee, B. (2014). Short and amusing: The relationship between title characteristics, downloads, and citations in psychology articles. *Journal of Information Science*, 40(1), 115-124. <https://doi.org/10.1177/0165551513511393>

Authors

Débora Cristina Ferreira Garcia
Rua Irineu Rios, 563, Jardim Beatriz, 13575-062, São Carlos, SP, Brasil
E-mail address: deboracfgarcia@gmail.com

Cristiane Chaves Gattaz
2815 San Gabriel 78705, Austin, Texas, USA
E-mail address: cristiane.gattaz@utexas.edu

Nilce Chaves Gattaz
Rodovia SP 340, KM 127,5, s/n, 13918-110, Jaguariúna, SP, Brasil
E-mail address: nilce.gattaz@embrapa.br