Revista Información Científica

ISSN 1028-9933
Universidad de Ciencias Médicas de Guantánamo

January 2024 Volume 103 e4461
DOI: https://doi.org/10.5281/zenodo.10553448

REVIEW ARTICLE

The editorial management of scientific journals as a component of Science, Technology and Innovation activities

La gestión editorial de las revistas científicas como componente de la actividad de Ciencia, Tecnología e Innovación

A gestão editorial de revistas científicas como componente da atividade de Ciência, Tecnologia e Inovação

Mercedes KeelingAlvarez[I], José Enrique Alfonso Manzanet[II]*

[I]Casadel Pedagogo Provincial Justo A. Chávez Rodríguez. Asociación de Pedagogos de Cuba. La Habana, Cuba.
[II] Centro Nacional de Información de Ciencias Médicas. La Habana, Cuba.

***Corresponding author:** jenrique@infomed.sld.cu

Received: 05-11-2023 **Accepted:** 23-12-2023 **Published:** 22-01-2024

ABSTRACT

Introduction: Science, Technology and Innovation activity currently constitutes a basic pillar in the development of a country. Scientific journals are an essential part of scientific research as they are the main vehicle for the dissemination of results. **Objective:** to carry out a theoretical assessment of the conception of editorial management as a scientific activity. **Method:** documentary analysis methods were used by selecting information obtained from scientific databases such as SciELO, Scopus and Google Scholar, using criteria: editorial management; scientific journals and science and technology activity. **Results:** aspects related to the evolution of scientific communication through magazines, their traditionalist, technological and social approaches were addressed; as well as its role in the scientific communication of the results of scientific research and the editorial management for the publication of scientific journals. **Final considerations:** the authors conceive the editorial management of scientific journals as a scientific-technical process with a marked pedagogical character that, through the rigorous evaluation of the research result, purifies and socializes the product of scientific creation.

Keywords: scientific communication; scientific journals; vocational training; science and technology activity; innovation

ISSN 1028-9933
Universidad de Ciencias Médicas de Guantánamo

RESUMEN

Introducción: la actividad de Ciencia, Tecnología e Innovación constituye en la actualidad un pilar básico en el desarrollo de un país. Las revistas científicas son parte esencial de la investigación científica por ser el principal vehículo para la divulgación de los resultados. **Objetivo:** realizar una valoración teórica sobre la concepción de la gestión editorial como una actividad científica. **Método:** se utilizaron métodos de análisis documental mediante la selección de información obtenida de bases de datos científicas como SciELO, Scopus y Google Académico, con la utilización de criterios: gestión editorial; revistas científicas y actividad de ciencia y tecnología. **Resultados:**se abordaron aspectos relacionados con la evolución de la comunicación científica a través de las revistas, sus enfoques tradicionalista, tecnológico y social; así como su papel en la comunicación científica de los resultados de la investigación científica y la gestión editorial para la publicación de las revistas científicas. **Consideraciones finales:**los autores conciben la gestión editorial de las revistas científicas como un proceso científico-técnico con marcado carácter pedagógico que, a través de la evaluación rigurosa del resultado de investigación, depura y socializa el producto de la creación científica.

Palabras clave: comunicación científica; revistas científicas; formación profesional; actividad de ciencia y tecnología; innovación

RESUMO

Introdução: a atividade de Ciência, Tecnologia e Inovação constitui atualmente um pilar básico no desenvolvimento de um país. As revistas científicas são uma parte essencial da investigação científica, pois são o principal veículo de divulgação dos resultados. **Objetivo:** realizar uma avaliação teórica da concepção de gestão editorial como atividade científica. **Método:** foram utilizados métodos de análise documental selecionando informações obtidas em bases de dados científicos como SciELO, Scopus e Google Acadêmico, utilizando critérios: gestão editorial; revistas científicas e atividades de ciência e tecnologia. **Resultados:** foram abordados aspectos relacionados à evolução da comunicação científica por meio de revistas, suas abordagens tradicionalistas, tecnológicas e sociais; bem como o seu papel na comunicação científica dos resultados da investigação científica e na gestão editorial da publicação de revistas científicas. **Considerações finais:**os autores concebem a gestão editorial das revistas científicas como um processo técnico-científico de marcado caráter pedagógico que, por meio da avaliação rigorosa do resultado da pesquisa, purifica e socializa o produto da criação científica.

Palavras-chave: comunicação científica; revistas científicas; formação profissional; atividade de ciência e tecnologia; inovação

How to cite this article:
Keeling Alvarez M,Alfonso Manzanet JE.**The editorial management of scientific journals as a component of Science, Technology and Innovation activities**. RevInfCient [Internet]. 2024 [cited Access date]; 103:e4461. Available in: http://www.revinfcientifica.sld.cu/index.php/ric/article/view/4461

Email: ric.gtm@infomed.sld.cu

INTRODUCTION

In several philosophical systems, communication has been more or less explicitly the object of general theoretical analysis. In the case of the existential current, it was erected as one of the central categories within its philosophical conceptualization. Marxist philosophy always conceived communication as closely linked to the social nature of man and the evolution of his consciousness.

In different works of Karl Marx and Frederick Engels appear reiterated, [1,2]accurate and deep reflections on it, but incipient and in need of a later more systematic treatment that has not been produced. It is in non-Marxist philosophy where more contributions to an epistemology of communication have been made up to the present. But neither can communication be understood as a super category that substitutes or supplants other general categories in the explanation of the human essence, as occurred with the communicative approach within Marxist psychology in the late 1970s and early 1980s.

According to RizoGarcía, [3]communication can be defined as a "set of interacting elements in which any modification of one of them affects the relationships between the other elements". In this sense, communication is an open system of interactions, always inscribed in a given context and obeying certain principles:

a) The principle of totality: This implies that a system is not a simple sum of elements, but has its own characteristics, different from the elements that compose it taken separately.
b) The principle of circular causality: according to which the behavior of each of the parts of the system is part of a complicated interplay of mutual implications, actions and retroactions.
c) The principle of regulation: This states that there can be no communication that does not obey a certain minimum number of rules, norms and conventions.

These rules are precisely those that allow the balance of the system.

In a translation by Ciapuscio [4] it is stated that scientific work is basically a communicative activity, in which language has a constitutive character. In a broad sense, scientific communication can be conceived as a process of continuous recontextualization and reformulation from the original and innovative texts to the (presumably) final texts, destined to the information of the general public.[5]

For his part, Marcos[6] states that it is a multiple phenomenon that includes not only the communication of contents, but also of procedures, problems, values and communication within the expert community itself, and also communication between it and the rest of society or special sectors.

The communication of science is as old as science itself. From the first discoveries the researcher created methods to make known the results of his processes. It is determined, according to Jorge Fernandez, by the nature of its content and objectives, and is dedicated to explaining with accuracy and depth the facts of the objective reality that surrounds us, expressing the cause-effect relationships between phenomena and clarifying the stages of historical development.[7]

With the advance of the various disciplines, new ways of organizing scientific activity emerged, which took the form of the creation of academies and societies that brought together intellectuals interested in science: Academia del Cimento in Florence (1657), the Royal Society of London (1660) and the Académie Royal des Sciences in Paris (1666). These societies involved the formation of invisible colleges, informal networks of scientists created through personal contact and private correspondence, which constituted the embryo for the birth of a scientific journal.[8]

Scientific communication is of utmost importance for scientists, since its mastery allows them to clearly and correctly describe a scientific fact or process, to clearly and logically construct a written document of any length with the use of normal language resources, and to prepare agreements, research projects and others, with precision and sufficient imagination to provide for possible contingencies.[9]

For all of the above reasons, this study is carried out with the objective of making a theoretical assessment of the conception of editorial management as a scientific activity.

DEVELOPMENT

A narrative bibliographic review was carried out with the use of documentary analysis methods, through the selection of information obtained from scientific databases such as SciELO, Scopus and Google Scholar; with the use of criteria such as: editorial management; scientific journals and science and technology activity.

Evolution of scientific communication through journals

The activity of science and scientific information in the pre-revolutionary period in Cuba was not organized until after the triumph of the Revolution. In this period, the first specialized scientific journals appeared suddenly, mainly in the field of medicine and health sciences. The authors consider three moments in the evolution of the activity of communication of the results of science:

First moment (traditionalist approach)

It arises with the appearance of the first scientific journals in the 17th century (1665), although it is known that the communication of science emerged much earlier, but in an informal way. It was characterized by linear communication using the traditional medium (scientific journals).

Paper and printing played a fundamental role in the communication of science, because the texts are mediated by the limitations of space on the pages of the publication. The editorial management processes are traditional, and the system of evaluation and validation of science is done through the criteria of experts, known as peer review, which could take as long as the form of communication allowed. Policies in relation to the activity were few.

The output of publications depended on the capacity of the printing house to take on the projects, passing directly through its material conditions to be able to exercise its function. The publication of errata was frequent, since there was no possibility of amending the texts if an error was detected or there was a last minute change.

At this time, the most enduring, the number of journals in all areas of science grew exponentially, which led to the need to group information according to selectivity criteria for better evaluation. Thus, scientific databases were created and scientific productivity began to be measured. The Impact Factor indicator appeared.

The 1980s marked the end of the 20th century with the appearance of the Internet as a new form of communication and the appearance of markup language (HTML), which began to allow an increase in the number of words per article, but still mediated by the standards of the printing press.

Databases remained unchanged in their operation, and continued their work of indexing resources with total "normality", but it was already noticed that electronic and digital development would allow greater interconnection and thus paradigmatic changes were on the horizon.

Second moment (technological approach)

At the end of the 20th century, and in the 1990s, editorial management and its processes begin to be intervened by a more elaborate technology. E-mail and digital imaging began to be used, but without renouncing traditional management.

The editorial process is automated with the use of robust tools such as the Open Journal System. Important elements in science communication that were not considered before, such as high resolution images and scientific videos, among others, and which are directly related to the identification of key elements in the transmission of knowledge, begin to be taken into account.

The identification of authors and their scientific production, the recognition of institutions as centers of scientific production and the mission of evaluators as a crucial link in the process of transmitting science are identifying elements of this stage, for which technological solutions were also established.

Policies begin to take on a different nuance and change direction. Researchers begin to recognize the need to be able to access scientific information as a common good without any kind of restriction. The Open Access movement is created.

Third moment (social approach)

At this moment, which begins with the 21st century, the production line and the traditional publication mechanisms are already obsolete.

This is the moment when scientific communication becomes a social process. The emergence and rise of social networks dynamizes the communication of results and, most importantly, the author is the protagonist. Scientific journals do not lose their hegemony, but they no longer hold the primacy of communication.

Technology is the main mediator of science communication processes, and electronic media prevail over all traditional media.

Primary communication through preprints servers streamlines the socialization of knowledge and renews the concept of peer review. This type of prepublication (preprints), which began in the exact sciences, has spread to all areas of science as an immediate channel for exposing research results. These are preliminary research reports, which have not been subjected to editorial scrutiny and peer review. Their fundamental value is that they allow scientists to access cutting-edge findings more quickly than when authors submit their findings directly to traditional journals, which often take months to complete reviews.[10]

The paradigm of science communication is evolving towards Open Science, which is at the core of efforts to increase credibility and transparency in research methods. Its main axes are (Open Access), (Openpeer review) and (Open Data).

However, even with the descriptions made, communications in science, both written and oral, and even visual, do not always manage to convey the essence of what the author wanted to say, but literally digress in a series of concepts around the central theme, which shows great communication difficulties among professionals, especially in education and health sciences.

Regardless of the characteristics of each of the moments, scientific journals retain their hegemonic role as primary channels of communication of science because each of the transformations that have occurred and the new elements that have appeared are developed around it, i.e., they have functioned and function to complement its mission, but not to replace it. Editorial management remains an immovable process, practically rigid in its essence and inevitably requiring the assistance of its editorial team.

The editorial management of scientific journals and their role in the communication of the results of scientific research

In order to understand the importance of editorial management, it is necessary to highlight the role of scientific journals as the main channel of communication of science, it is necessary to understand the historical context in which they appear. During the Renaissance (15th and 16th centuries) the "scientific revolution" took place in Europe, which became the basis of modern science. People interested in scientific knowledge, generally philosophers, began to use the scientific method of investigation and direct observation of nature as a source of knowledge.

Until the beginning of the 15th century, scientists and physicians communicated their scientific or clinical observations verbally at the universities where they taught, or in small group meetings. When they wished to expose them to peers or teachers far from their places of work, they resorted to letters in which they presented what they had discovered in the analysis of nature or living beings, or their opinions on the prevailing ideas in the field of science and medicine.

This epistolary communication required the writing of manuscripts in its original meaning: "handwritten text" and some handwritten copies. The process, apart from being slow and cumbersome, allowed some of the recipients to take advantage of the contents of the letter for their own benefit, which generated intellectual theft. The invention of the printing press, in the mid-15th century, initiated a cultural revolution by allowing the printing of multiple copies of books and other documents, with a much wider and growing readership.[11]

Scientific journals are, at present, for scientific practice, the main means of dissemination of results, although not the only ones.

The birth of the first scientific journals in 1665 (Journal des Savans and Philosophical Transaction) marked the birth of a modern science called to become a profession of professionals (doctors, apothecaries, engineers, military, university professors...) and not of aristocrats and clergymen. The scientific method diversifies with more collaborators, therefore, a means of communication was needed that would give greater speed to the traffic of ideas, that would embrace the different branches of knowledge (Astronomy, Physics, Chemistry, Botany, Medicine, Pharmacy, Mathematics...), that would do so in a brief and concise manner and that would somehow certify its authenticity and sanction its rigor (scientific validation through peer review). By endowing the journal with periodicity, it became a rapid and widely distributed publication, becoming the safest way for scientists to disseminate their ideas, have influence and not be appropriated by anyone.[12]

From the 18th century onwards, the number of journals multiplied, following a pattern of exponential growth. This growth occurred at the same rate as scientific disciplines were divided and subdivided into specialties and subspecialties. In this sense, it can be said that the creation and maintenance of scientific and professional journals act as a key instrument in the organization, structuring and social institutionalization of science.

Journals are a more or less distorted reflection of the general functioning of scientific disciplines, their institutions and researchers, but also of the relationship that each specialty maintain with itself, with other discipline and the society. They are constitutive elements in the production and reproduction of knowledge, and the key element in the history of the different disciplines.[13]

The advent of Internet as a new mean of formal publication present a new era in the possibilities for a professional to manage visibilities for his or her own results. This implies a change in communication habits and the emergence or flourishing of accusatory and inappropriate practice and behaviors that may put or call into question the credibility and prestige of science.

The invention of the printing press implied the creation of a technology that led to the appearance of tasks (composition and assembly, printing, marketing and sale) and professions (typesetter, proofreader, printer, publisher, book dealer, bookseller and distributor) essential for the document created by the author to reach the reader.

If one looks at the developments in publishing technologies from the invention of the printing press to the emergence of the Internet, one can find a common thread: the progressive popularization of these technologies, which involves the gradual elimination of the mediations between the poles of creation and consumption (author/reader). The popularization of the personal computer, word processing and printers in the last two decades of the 20th century enabled authors who so wished to self-publish their texts. For the first time, they were able to take over the composition, editing and even printing of their texts.

The Internet completes the cycle, since publishing, understood as the operation that makes it possible to produce a document and finance it, and distribution also passes into the hands of the author. From this moment on, at least potentially, the author not only creates his work, but is also in a position to give it the corporeality he wants and to disseminate it as he sees fit.

Editorial management for the publication of scientific journals

The editorial management of a scientific journal starts with the reception of the manuscript sent by an author, which is evaluated for the first time to determine if it is relevant to the field of work of the publication and if it complies with the regulations imposed by the journal. If the first phase is successfully passed, it will enter a scientific evaluation process where the editorial team is responsible for selecting peer reviewers to give their judgment on the document in question. Finally, the editorial team itself is responsible for deciding whether the article will be made public or not, assuming all the responsibility that this decision entails. The scientific document, once approved, must go through several technical processes that include the writing, correction and editing of the text, as well as the layout that finally constitutes its output format.

In this sense, Delgado López-Cozar refers to editorial management as a complex process that takes place from the time a paper enters the editorial office of a journal until it is published and in which multiple actors are involved, ranging from the editor, reviewers, technicians and the authors themselves, and where, if the mechanisms, procedures and filters for selection and evaluation, on the one hand, and those for editing and publication, on the other, are of high quality, the resulting product will also be of high quality.[14]

Hernández Huerta considers that this is a task that is becoming progressively more complex and demanding and that editorial teams must clearly define the editorial project and highlight its originality, increase the internationalization index of contributions, obtain editorial quality seals, enter one or several rankings and incorporate good editorial practices into their work.[15]

For their part, Vuotto and collaborators consider that the editorial process of scientific publications poses several complexities that require special attention, such as the construction and implementation of services aimed directly at the community of readers, for example, the administration of subscriptions or free accessibility as appropriate, passing through the publication of the corresponding issue, which includes the generation of content and its evaluation prior to the acceptance of each article, and culminates in the incorporation of the issue already edited and published into the archive for retrospective uses. Priority is given to aspects of storage, search, preservation and visibility.[16]

Authors such as Torrealba Urdaneta believe that the penetration of the digital era in the sphere of scientific journals is today an undeniable and irreversible reality that has drastically transformed the bases of editorial management [17] that it could be said that it is not conceivable today to have an editorial management that does not use at least some of its components with electronic resources.

For Rodríguez Yunta and Giménez Toledo, editorial management is often such a complex process that, for example, in the Social Sciences and Humanities there are many journals with only one or two issues per year, and in many cases the creation of an issue is a voluntary exercise carried out by a small team or even by a single person. They also point out that the legacy of the past has encouraged the emergence of the "institutional" journal, managed by university departments that often cannot assume a greater effort in its production. Or else, they are initiatives linked to the external image of cultural institutions, organizations or associations, which can hardly be considered representative of a discipline in its globality. [18]

In his analysis, Rivero Macías also considers the editorial management of scientific journals as a specific form of knowledge management that integrates a group of processes that favor the creation, development, availability, conservation, organization, evaluation and use of the different types of materials generated and distributed through information and communications technologies.[19]

Finally, Banzato and Rozemblum state that the sustainability of a management model in scientific publishing is based on science institutions supported by public funds; on the vocational activity of the collective of editors, authors and reviewers who do their work as part of their professional development, without additional remuneration; in the development of Open Access journals, which do not charge for article processing (APC); in the defense of rights through the adoption of Creative Commons Attribution - Non-commercial - Share Alike (BY-NC-SA) licenses; in the exclusively electronic edition, abandoning the paper format; and in the technical coordination supported by the institution itself. All this based on knowledge as a common good. [20]

FINAL CONSIDERATIONS

Taking into consideration the previous assessments, the authors conceive the editorial management of scientific journals as a scientific-technical process with a marked pedagogical character, which, through the rigorous evaluation of research results, refines and socializes the product of scientific creation.

Its scientific character is given in the recognition of the process as a guarantee for the credibility of research results. It makes extensive use of technology for the development of its productive flow, which gives strict compliance to the rules of scientific communication, and this technology itself also leads the process to its own limits.

The pedagogical character is expressed in the need to periodically establish training processes that favor the preparation of the editorial teams to execute each of the stages through which the process passes or simply to exercise any of the roles that comprise the management.

REFERENCES

1. Gil JC. Marx y la prensa. Elementos para una crítica de la comunicación. Redes.com [Internet]. 2004 [cited 21 Dic 2023]; (1):169-80. Available in: https://idus.us.es/handle/11441/24816
2. Sierra Caballero F. Marxismo y comunicación. 1ªed. Madrid: Siglo España; 2020.
3. García MR. Pensamiento sistémico y comunicación. Razón y Palabra [Internet]. 2011 [cited 21 Dec 2023]; (75):1-13. Available in: https://dialnet.unirioja.es/servlet/articulo?codigo=3686612
4. Ciapuscio GE, Kuguel I. Hacia una tipología del discurso especializado: aspectos teóricos y aplicados. En: García Palacios J, Fuentes MT (eds). Entre la terminología, el texto y la traducción. 2ªed. Salamanca: Almar; 2002. p: 37-73. Available in: https://dialnet.unirioja.es/servlet/articulo?codigo=4266823
5. Ciapuscio GE. The agreement letter: Linguistics as a hermeneutic tool in professional discourse. Rev Signos [Internet]. 2021 [cited 21 Dec 2023]; 54(107):736-757. DOI: https://doi.org/10.4067/S0718-09342021000300736
6. Marcos A. La comunicación de la ciencia. Elementos teóricos. España: Universidad de Valladolid; 2018. http://www.fyl.uva.es/~wfilosof/webMarcos/textos/ComCien_ElementosTeor.pdf
7. Miriam F, Fernández J. Comunicación Científica. La Habana: Editorial Universitaria; 2007.
8. Borrego Á. Are mega-journals a publication outlet for lower quality research? A bibliometric analysis of Spanish authors in PLOS ONE. Online Inf Rev [Internet]. 2021 [cited 21 Dec 2023]; 45(2):261-269. DOI: https://doi.org/10.1108/OIR-04-2018-0136
9. Alfonso Manzanet JE. Cómo escribir y publicar artículos científicos, una propuesta electrónica [Tesis]. La Habana: Universidad de Ciencias Médicas de La Habana; 2004.
10. Alonso Arévalo J, Lopes C. El papel transformador de los preprints en la aceleración de la comunicación científica. En: Seminario Hispano-Brasileño de Investigación en Información. Madrid, 2020. España: Universidad Complutense de Madrid; 2020 [cited 21 Dec 2023]. Availableon: https://repositorio.ispa.pt/handle/10400.12/8288
11. Reyes BH. Historia, propósitos y características de las revistas médicas. Rev Med Chil [Internet]. 2018 Aug [cited 21 Dec 2023]; 146(8):913-20. DOI: http://dx.doi.org/10.4067/s0034-98872018000800913

12. Delgado López-Cózar E, Feenstra RA, Pallarés-Domínguez D. Investigación en Ética y Filosofía en España. Hábitos, prácticas y percepciones sobre comunicación, evaluación y ética de la publicación científica [Internet]. España: Asociación Española de Ética y Filosofía Política; Sociedad Académica de Filosofía; Red Española de Filosofía; 2020. DOI: https://doi.org/10.13140/RG.2.2.32523.31520
13. Price D. Hacia una historia de la ciencia. Barcelona: Ariel; 1973.
14. Delgado López-Cózar ED. Evaluar revistas científicas: un afán con mucho presente y pasado e incierto futuro. En: Revistas científicas: situación actual y retos del futuro [Internet]. Barcelona: Universitat de Barcelona Edicions; 2017. Available in: http://hdl.handle.net/2445/117374
15. Hernández-Huerta JL. La gestión editorial de revistas científicas hoy. La revisión externa de originales y el «corte del editor». Rev ORL [Internet]. 2016 mar. [cited 21 Dic 2023]; 7(2):125-126. DOI: https://doi.org/10.14201/orl.14168
16. Vuotto A, Fernández GV, Rojas MC. Gestión editorial de publicaciones con referato en línea: proceso de construcción, publicación y administración con soluciones en software libre. BibliosJLibrar Inform[Internet]. 2013 may 11 [cited 21 Dic 2023]; (52):74-82. DOI: https://doi.org/10.5195/biblios.2013.135
17. Torrealba Urdaneta GM. La profesionalización de las revistas científicas y la gestión estratégica ante el desafío digital. Dissertare [Internet]. 2020 jul. [cited 5 Oct 2023]; 5(2):1-3. Available in: https://revistas.uclave.org/index.php/dissertare/article/view/3002
18. Rodríguez-Yunta L, Giménez-Toledo E. Fusión, coedición o reestructuración de revistas científicas en humanidades y ciencias sociales. Profesional de la información [Internet]. 2013 Ene. [cited 21 Dic 2023]; 22(1):36-45. Available in: https://revista.profesionaldelainformacion.com/index.php/EPI/article/view/epi.2013.ene.05
19. Rivero Macías ME. El enfoque basado en proceso en la gestión editorial de las revistas científicas. Hum Médicas [Internet]. 2019 [cited 21 Dic 2023]; 19(3):637-658. Available in: http://humanidadesmedicas.sld.cu/index.php/hm/article/view/1473/html_114
20. Banzato G, Rozemblum C. Sustainable model of editorial management in Open Access in academic institutions. Principles and procedures. Palabra Clave (La Plata) [Internet]. 2019 [cited 21 Dic 2023];8(2):e069. DOI: https://doi.org/10.24215/18539912e069

Conflict of interest:
The authors declare that there are no conflicts of interest.

Author contributions:
Mercedes Keeling Alvarez: conceptualization, data curation, formal analysis, research, methodology, supervision, visualization, writing-original draft, writing-revising and editing.
José Enrique Alfonso Manzanet: conceptualization, data curation, formal analysis, research, methodology, supervision, visualization, *Writing-original draft:*,*Writing-review and editing:*.

Financing:
The authors did not receive funding for the development of this research.