



Original article

The professional improvement of university professors in the writing and publication of scientific articles

La superación profesional del profesorado universitario en la redacción y publicación de artículos científicos

O aprimoramento profissional de professores universitários na redação e publicação de artigos científicos

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ABSTRACT

University professors have important commitments to the publishing of scientific articles. The work of socializing these articles in high-impact journals is essential for the visibility of the scientific-research work of universities and their subsequent categorization and evaluation in different indicators. However, it is a challenge for higher education centers to ensure that a significant number of university teachers and researchers publish regularly in journals indexed in databases of recognized prestige and scientific visibility. Therefore, the purpose of this study is to characterize the writing and publishing of scientific articles as content of the professional improvement process of university professors. In the investigative process, the following methods were used: historical-logical; inductive-deductive; analysis-synthesis and the survey. The present investigation made it possible to verify that the improvement actions carried out at the University of Ciego de Ávila "Máximo Gómez Báez" on the writing and publishing of scientific articles are not sufficient and lack an integrative approach since they do not manage to cover the treatment of all the deficiencies presented by the teaching staff. Therefore, methodological procedures are proposed that integrate the determination of learning needs, the selection of content, the execution and evaluation of actions, as well as the methodological guidelines for their implementation in educational practice. These procedures are based on a multidisciplinary approach.

Keywords: scientific articles; drafting; faculty; methodological procedures; publication.

RESUMEN

El profesorado universitario presenta importantes compromisos con la publicación de artículos científicos. La labor de socialización de estos artículos en revistas de alto impacto es esencial para la visibilidad de la labor científico-investigativa de las universidades y su posterior categorización y evaluación en diferentes indicadores. Sin embargo, es un

reto para los centros de Educación Superior lograr que un número significativo de docentes e investigadores universitarios publiquen con regularidad en revistas indexadas en bases de datos de reconocido prestigio y visibilidad científica. Por ello, el presente artículo tiene como propósito caracterizar la redacción y publicación de artículos científicos como contenido del proceso de superación profesional del profesorado universitario. En el proceso investigativo se emplearon los métodos: histórico-lógico; inductivo-deductivo; análisis-síntesis y la encuesta. En este sentido, se pudo constatar que las acciones de superación realizadas en la Universidad de Ciego de Ávila "Máximo Gómez Báez" sobre la redacción y publicación de artículos científicos no son suficientes y carecen de un enfoque integrador, puesto que no logran abarcar el tratamiento de todas las deficiencias presentadas por el profesorado. Por ello, se proponen procedimientos metodológicos que integran la determinación de las necesidades de aprendizaje, la selección de los contenidos, la ejecución y evaluación de las acciones, así como las orientaciones metodológicas para su implementación en la práctica educativa. Estos procedimientos se sustentan en un enfoque multidisciplinario.

Palabras clave: artículos científicos; redacción; profesorado; procedimientos metodológicos; publicación.

RESUMO

Os professores universitários têm compromissos importantes com a publicação de artigos científicos. O trabalho de socialização desses artigos em periódicos de alto impacto é essencial para a visibilidade do trabalho de pesquisa científica das universidades e sua posterior categorização e avaliação em diferentes indicadores. No entanto, é um desafio para os centros de Ensino Superior garantir que um número significativo de professores universitários e investigadores publiquem regularmente em revistas indexadas em bases de dados de reconhecido prestígio e visibilidade científica. Portanto, o objetivo deste artigo é caracterizar a redação e publicação de artigos científicos como

conteúdo do processo de aperfeiçoamento profissional de professores universitários. No processo investigativo foram utilizados os seguintes métodos: histórico-lógico; indutivo-dedutivo; análise-síntese e levantamento. Neste sentido, foi possível verificar que as ações de melhoria realizadas na Universidade de Ciego de Ávila "Máximo Gómez Báez" na redação e publicação de artigos científicos não são suficientes e carecem de uma abordagem integradora, uma vez que não conseguem abranger os tratamentos de todas as deficiências apresentadas pelo corpo docente. Por isso, são propostos procedimentos metodológicos que integram a determinação das necessidades de aprendizagem, a seleção dos conteúdos, a execução e avaliação das ações, bem como as orientações metodológicas para a sua implementação na prática educativa. Esses procedimentos são baseados em uma abordagem multidisciplinar.

Palavras-chave: artigos científicos; redação; Faculdade; procedimentos metodológicos; publicação.

INTRODUCTION

Universities are sources of knowledge generation that enable the development of science, technology and society. For this reason, they have become reference institutions for the exchange and communication of research results in the international scientific community. University professors are key as sender and receiver of this continuous scientific-academic and interdisciplinary dialogue.

The quintessential way to make visible the results of research and educational innovation by university professors is scientific publication, whether through books, articles in scientific journals indexed in databases, social networks, blogs or websites (Márquez and Gómez, 2018; Barbón *et al.*, 2019). Through them, it is possible to verify the level reached regarding the professional growth of the

teaching staff, as well as that of the institution to which they belong (Estrada *et al.*, 2015; Castro & Ion, 2018; Michavila & Martínez, 2018).

Among the general functions of university professors are: publishing research results and participating in scientific events; as well as the obtaining of scientific, technological, art and innovation results (MES, 2023). This implies that the improvement of the professional performance of university professors, from academic training programs for master's and doctoral degrees, requires the publication of the essential results of the research process carried out. In the case of Cuban doctoral students, according to Resolution No. 1/2020 of the National Commission of Scientific Degrees, to successfully complete their doctoral training they must publish at least two scientific articles in journals indexed in regional and international indexing systems that correspond with the classification established according to the Ministry of Higher Education (MES).

Likewise, the transition to a higher teaching category, whether as an Assistant Professor, Auxiliary Professor or Full Professor, requires, according to Resolution No 145/2023, the publication of scientific articles in specialized journals and indexed in international databases. Also, the publications that the teacher has made are taken into account in the teacher's annual evaluations.

From this perspective, it is considered that university professors have important commitments to the publication of scientific articles. The work of socializing these articles in high-impact journals is essential for the visibility of the scientific-research work of universities and their subsequent categorization and evaluation in different indicators.

However, the challenge of ensuring that a significant number of university professors and researchers publish regularly in journals indexed in databases of recognized prestige and scientific visibility is undeniable. According to Gorina *et al.*

(2018), university professors must continue to increase their knowledge and skills in the use of Information and Communications Technologies (ICT), in information management, in mastering the characteristics of scientific journals and in taking awareness of the importance of publishing articles in this type of magazines.

In this context, the preparation of university professors fundamentally emphasizes learning the contents of their specialty and thus neglects the improvement of their professional performance in important aspects such as the writing and publication of scientific articles. A problem is presented regarding the limitations in the preparation of university professors for the writing and publication of scientific articles. To resolve this problem, the present research assumes the need for a new point of view of the professional development of university professors.

The improvement of teachers to achieve scientific publications in Higher Education centers has been approached from various perspectives. Authors such as Sierra *et al.* (2018), Martín *et al.* (2020), Armiñana *et al.* (2021) and Pérez *et al.*, (2023) have recognized the need to propose solutions that, through professional development, make it possible to prepare teachers for the writing and publication of scientific articles.

However, theoretical-practical deficiencies are revealed when evaluating this process from general foundations, without an adequate methodological contextualization of the actions to be developed, based on the learning needs of university professors. Nor is its multidisciplinary projection, based on self-training and the academic and research requirements of the teaching staff, adequately integrated into the improvement of their professional performance for the publication of scientific articles. With these arguments, the following objective is proposed: to characterize the writing and publication of scientific articles as content of the process of professional improvement of university professors.

MATERIALS AND METHODS

The research is descriptive in nature, it was carried out in the faculties of Technical Sciences and Physical Culture of the University of Ciego de Ávila "Máximo Gómez Báez", in the period between February and September 2023. These faculties were selected because they were the with the lowest rate of publication of scientific articles per professor during 2022. The population was made up of 56 professors from these faculties, who were in training processes (diploma, master's, doctorate) or changing teaching category, because these Academic circumstances determine the need and interest in writing and publishing scientific articles. Five managers (heads of departments, postgraduate director and director of science-technical and innovation) were taken into account as sources of information.

The research process was carried out following the dialectical conception of the research, which has the dialectical-materialist method as its methodological basis and theoretical and empirical methods were used. The theoretical methods used were:

- The historical-logical: allowed the study of the theoretical-conceptual framework on the improvement of teachers for the writing and publication of scientific articles.
- The inductive-deductive: made it possible to determine inferences in the analysis of the data provided by the techniques and instruments and in the determination of essential aspects in the writing and publication of scientific articles.
- The analysis-synthesis: made it easier to identify, organize, plan and summarize the data provided by the diagnostic instruments, as well as serving to determine the contents of the improvement process related to the writing and publication of scientific articles.

Among the empirical methods, the survey was used, carried out anonymously with 56

teachers to know their considerations about the preparation they have in writing and publishing scientific articles. Document analysis was also used (annual reports on science and postgraduate plans of the University of Ciego de Ávila "Máximo Gómez Báez", from 2019 to 2023).

Likewise, the course programs taught in the last four years (2019-2023) were examined, in which the following were taken into account for the analysis: composition of the content system, updating of the bibliography, methodological guidelines and the faculty in which the course was taught.

In addition, interviews were used with department heads and postgraduate and science and technology directors, which made it possible to obtain valuable information about the improvement process of university professors for writing and publishing scientific articles.

RESULTS

At the "Máximo Gómez Báez" University of Ciego de Ávila, through the documentary review of the annual reports on science, technology and innovation, it was possible to verify that in the last five years (2018-2022) the publications were only fulfilled in 2019. Furthermore, when following the historical data of publications in this five-year period, it can be seen that publications in group I and II have always represented less than 25% of the total publications. This is evident in the following graph.

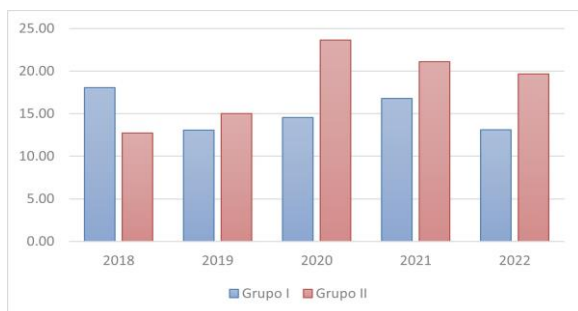


Fig. 1- Publications in group I and II journals

Likewise, it was confirmed that in the postgraduate plans of the last two years only seven postgraduate courses on scientific writing and publication have been proposed, which have been carried out with reduced enrollment in three faculties (Agricultural Sciences, Economic and Business Sciences and Social Sciences and Humanistic).

An evaluative analysis of these courses was carried out and it was found that they focus mainly on theoretical content on scientific textual typologies and their characteristics, without emphasizing the achievement of skills that contribute to the individual management of the teacher to write and publish scientific articles. Limitations were evident in the interrelation between knowledge, skills and values as part of the content of these courses, based on the writing and publication of scientific articles. The level of updating of the bibliography was insufficient and the methodological guidelines lacked contextualization and didactic precision for the adequate development of the courses, based on problematic and participatory methods with a self-training approach.

In the interview with the managers, the lack of a strategic projection of the professional development process of university professors to achieve their preparation in the writing and publication of scientific articles was confirmed. There was consensus among those interviewed on the importance of developing actions from professional improvement that contribute to the preparation of university

professors for the writing and publication of scientific articles.

In this exchange with the directors, it was recognized how the insufficiencies in the teaching staff to write and publish scientific articles affect the fulfillment of doctoral training strategies at the faculty and university level, as well as the policy of changing teaching categories. It was deepened that these aspects limit the visibility of the institution and the levels of excellence referred to the accreditation of majors, postgraduate programs and the institution's own certification and evaluation.

A survey was applied to the 56 teachers who participated in the research process. Of the professors surveyed, 37 (66%) stated that they had not received improvement actions in the last three years regarding the writing and publication of scientific articles.

In relation to their preparation in the use of the linguistic resources necessary for writing scientific articles and information skills in accessing databases of high-impact journals, 49 respondents (87.5%) considered it inadequate.

Regarding the integration of self-training in improvement actions related to the writing and publication of scientific articles, 52 (89.2%) rated it as not very appropriate. Regarding their preparation to integrate the requirements and principles of scientific writing and the use of scientific language, 51 respondents (91%) evaluated it as not very adequate. For its part, the work with citations and bibliographic references, the level of assessment and updating of the theoretical foundations that are addressed in the scientific article, was rated as not very adequate by 53 (94.6%) of the professors surveyed.

The integration of these results made it possible to characterize the process of professional improvement of university professors for the writing and publication of scientific articles. From this characterization, the contents of the

professional improvement process, the principles and organizational forms to be integrated into said process were determined, with the purpose of solving the problem related to the limitations in the preparation of university professors for the writing and publication of scientific articles.

With these elements, methodological procedures are proposed that contribute to the relevance of the professional development process of university professors in their preparation for the writing and publication of scientific articles.

Methodological procedure for determining the learning needs of university professors in the writing and publication of scientific articles

Objective: determine the learning needs of university professors in the writing and publication of scientific articles.

Actions to take:

- Document analysis: improvement plans, academic training strategies (master's degrees and doctorates) and changes in teaching categories, to determine the needs of university professors related to the writing and publication of scientific articles in compliance with these commitments.
- Conducting discussion groups with the participation of university professors, to integrate assessments of their learning needs in the writing and publication of scientific articles.
- Interviews with institutional managers to identify potentialities and limitations of the professional development process of university professors in their preparation.
- Content analysis of articles published by teaching staff to assess their scientific-methodological relevance.

Methodological procedure for the selection of contents of the professional improvement process related to the writing and publication of scientific articles

Objective: select the contents related to the writing and publication of scientific articles to be inserted in the professional improvement actions of university professors.

Actions:

- Systematization of the theoretical foundations of the professional improvement process of university professors, in integration with the learning needs of university professors in the writing and publication of scientific articles.

- Selection of content based on the interrelation of knowledge, skills and values.

Knowledge system:

- Scientific information management.
- The writing of scientific texts.
- Criteria for the selection of scientific journals.
- Internationally prestigious databases of scientific journals.
- Editorial standards and criteria for the preparation of scientific articles.
- Types of scientific articles and ways of structuring them.
- The processes of planning (prewriting), textualization (writing) and self-revision (postwriting) of scientific articles.
- Classification of bibliometric indicators.
- The summons.
- The impact factor of magazines.

Webmetric indicators.

Skill system

- Identify journals related to your research topics.
- Use internationally prestigious databases.
- Identify frequent errors in scientific writing.
- Support the planning processes of the scientific text.
- Classify the types of scientific articles.
- Prepare a scientific article according to the IMRAD structure.
- Submit a scientific article to a scientific journal OJS platform.
- Prepare a bibliography on the research topic.

Webmetric indicators.

- Configure the researcher profile on the internet.

Values system

- Professional ethics in the writing and publication of scientific articles.
- Responsibility for the presentation of scientific results.
- Respect for the scientific community and the participants in the research process.
- Honesty to avoid plagiarism or self-plagiarism in the writing of scientific articles.

Methodological procedure for the execution of professional improvement actions related to the writing and publication of scientific articles

Objective: carry out professional improvement actions based on the various organizational forms of the process.

Actions:

- Conducting workshops with the following topics:
 - Information skills for accessing databases of high-impact journals.
 - Use of standards for citing and referencing in scientific articles.
- Development of specialized conferences with the themes:
 - The management of scientific information in the Cuban university context.
 - Writing scientific texts: most frequent errors.
 - Editorial standards and criteria for the preparation of scientific articles.
 - webmetric indicators.

- Teaching of the postgraduate course "Writing and publishing scientific articles".

- Socialization of self-improvement guides.

Methodological procedure for the evaluation of professional improvement actions related to the writing and publication of scientific articles

Objective: to corroborate the relevance of professional improvement actions in the preparation of university professors for the writing and publication of scientific articles.

Indicators are determined to evaluate improvement actions, such as:

- Level of participation of teachers in the different improvement actions.

- Level of satisfaction of the participants.
- Increase in the scientific production of the participants.

For this evaluation, different techniques will be used:

- Analysis of the record of evidence or portfolios provided by the participants as an integrating element of their evaluations of the proposal and the changes and transformations in their preparation for the writing and publication of scientific articles.
- Evaluation by experts and groups of the relevance of the articles presented by the participants.
- Socialization workshops with specialists.

The qualitative integration of the results of the evaluation carried out will make it possible to provide proposals for improvement in a continuous process of creative feedback that systematically contributes to the preparation of university professors in the writing and publication of scientific articles.

General guidelines for the implementation of procedures in practice

The general objective of the actions of the procedures is to develop the knowledge, skills and values of university professors for the search and management of knowledge, writing and publishing scientific results. It is based on an integrative and multidisciplinary approach for the articulation of technological, informational and linguistic-communicative content, on the link between theory and practice, as well as attention to the needs and potential of the participants.

The updating of content, the reactivation of previously acquired knowledge and skills, as well as the stimulation of attitudes and motivations that benefit self-management of knowledge and self-training, through the use of available information resources will be encouraged.

The topics will be developed through conferences, workshops and postgraduate courses from a participatory, group and problematizing approach, which favors active learning and group work. Independent work will also be promoted as a priority to promote critical reading and the development of critical thinking in the self-learning process. The guidance guides for self-training will offer possibilities to consolidate the role of university professors in their own preparation for the writing and publication of scientific articles.

The logic of the actions integrated into the procedures allows the participants to conclude with the writing of a scientific article and its submission to a journal indexed in a database of recognized prestige.

DISCUSSION

According to Cassany and Morales (2008), writing, in the academic field, goes beyond the communicative function; since it also manages to develop knowledge, generate identity and exercise power. Without a doubt, these last aspects are relevant for the development, evaluation and accreditation processes of universities.

One of the types of scientific texts most used by teachers and researchers to disseminate scientific results is the scientific article. The latter is defined, according to Raya and Zulueta (2015, p. 8), as "a primary publication with sufficient information that allows continuing information, reproducing experiments and evaluating intellectual processes. Furthermore, it can be submitted to review by the scientific community without restrictions." of any kind". This definition of the scientific article summarizes the basic requirements for this type of text.

The writing of scientific articles is a necessity in the improvement of the professional performance of university professors to respond to the socialization and visibility of their academic-research

results. When carrying out the causal assessment, it is identified that the professional improvement actions have not contextualized in an integrative manner the requirements and principles of scientific writing for the publication of articles by university professors.

The contradiction of the research is given between the need for university professors to achieve higher levels of publication of scientific articles and the didactic-methodological deficiencies present in their professional improvement process to improve their preparation in the writing and publication of scientific articles.

The need and importance of improvement for the writing and publication of scientific articles in Higher Education centers is based, then (Gutiérrez *et al.*, 2009; Pérez *et al.*, 2016; Gorina *et al.*, 2018).

In the national context, solutions have been provided from professional improvement to the problem of preparing teachers for the writing and publication of scientific articles (Cabot *et al.*, 2016; Martín *et al.*, 2019; Martín *et al.*, 2020). They have shown causes that hinder the writing and publication of scientific articles by university professors, such as: insufficient motivation to produce scientific publications; little knowledge about the criteria established for the identification of high-impact journals; limited knowledge for interaction with the Open Journal platform Systems ; little command of the English language to write the title and summary of the article in this language; lack of mastery in the use of specialized lexicon and the syntax required in scientific writing and difficulties in the use of standards for carrying out bibliographical settlement.

However, these foundations are very generalizing and do not reveal adequate levels of contextualization and specificity regarding the elements that must be integrated in the preparation of university professors for the writing and publication of scientific articles.

It is considered that the approach to the topic has been limited, since there has not been a complete response from science to the improvement of the professional performance of university professors for the writing and publication of scientific articles.

When characterizing the process of professional improvement of university professors for the writing and publication of scientific articles, the need for a new scientific-methodological approach is justified to delve into the collective and individual needs and potentialities and project actions from self-education. Likewise, this problem requires an integrative vision of the process, based on substantiating and integrating improvement actions with a multidisciplinary projection that address and contextualize the principles of scientific writing to the needs of university professors, taking into account their levels of training and category. teacher.

In this sense, the different proposals must pay attention to affective, attitudinal, axiological and praxiological elements and advocate a multidisciplinary view of teachers' improvement.

The proposed methodological procedures integrate the determination of learning needs, the selection of content, the execution and evaluation of actions, as well as the methodological guidelines for their implementation in educational practice. In this way, the improvement of teachers for the writing and publication of scientific articles will be influenced; since currently it was possible to verify that the improvement actions carried out at the University of Ciego de Ávila "Máximo Gómez Báez" on the writing and publication of scientific articles are not sufficient and lack an integrative approach, since they do not manage to cover the treatment of all the deficiencies presented by the teaching staff.

Finally, the above procedures are based on a multidisciplinary approach, since it is considered that for the teaching and praxis of writing and publishing scientific articles,

the intervention of a teaching team made up of experts in different areas such as: linguistics, communication is necessary. science, computing and foreign languages.

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The author participated in the design and writing of the article, in the search and analysis of the information contained in the consulted bibliography.

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