

Challenges for qualification of postgraduate digital scientific journals at UNEB: the experience with bibliometric indicators in an Education Journal in the 2018-2021 Quadriennium

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ABSTRACT

Introduction: The digital scientific journals of the Stricto Sensu Postgraduate Program are considered of fundamental importance for the dissemination of knowledge produced by researchers in different areas. **Objective:** This article aims to describe the monitoring of a journal as a digital scientific journal linked to a Stricto Sensu postgraduate Program, in search of improving its qualification during the quadriennium 2018-2021. **Method:** The Quali-Quantitative perspective is adopted, considering the actions developed by the Editorial Team aiming at the improvement of bibliometric indicators that currently stand out in the context of journal evaluation, such as Access Volume, Total Indexing and Google's h Citation Index. **Results/Conclusion:** The results presented show a possible path that new digital journals in the field of Education can follow for a higher qualification based on bibliometrics.

KEYWORDS

Digital scientific journals. Journal qualification. Quality indicators. Bibliometrics. Education.

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Desafios para qualificação dos periódicos científicos digitais da Pós-Graduação na UNEB: a experiência com indicadores bibliométricos em uma Revista de Educação no Quadriênio 2018-2021

RESUMO

Introdução: Os periódicos científicos digitais da Pós-Graduação Stricto Sensu são considerados de fundamental importância para difusão do conhecimento produzido por pesquisadores das diferentes áreas de atuação. **Objetivo:** Neste artigo objetiva-se descrever o acompanhamento de uma Revista enquanto periódico científico digital vinculado a um Programa de Pós-Graduação Stricto Sensu, em busca de melhoria da sua qualificação durante o quadriênio 2018-2021. **Método:** Adota-se a perspectiva Quali-Quantitativa, considerando as ações desenvolvidas pela Equipe Editorial visando à melhoria de indicadores bibliométricos que, atualmente, se destacam no contexto da avaliação de periódicos como Volume de Acessos, Total de Indexadores e Índice h de Citação do Google. **Resultado/Conclusão:** Os resultados apresentados demonstram um possível caminho que novos periódicos

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digitais da Área de Educação podem seguir para uma maior qualificação pautada na bibliometria.

PALAVRAS-CHAVE

Periódicos científicos digitais. Qualificação de periódicos. Indicadores de qualidade. Bibliometria. Educação.

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1 INTRODUCTION

The current scenario of the qualification of digital scientific journals in Brazil requires efforts that go beyond the traditional requirements linked to the rigor of the editorial flow and evaluation processes. Today's editorial teams are also faced with the need for technical qualification and training, almost always linked to specific information and communication technology tools, which allow them to meet the demands linked to the new standards required for publications, aiming for greater acceptance, visibility, and recognition of their journals.

This reality becomes even more challenging for journals in the area of Education from public institutions, which often work with reduced editorial teams, without specialized professionals to work in a dedicated way, without the necessary funding and institutional support for a higher qualification. And it is in this context of the current difficulties experienced by journals in Education to remain active while meeting the specificities required by organizations that favor greater visibility and internationalization that this work is structured

Scientific journals linked to *Stricto Sensu* Graduate Programs (PPGSS) play the role of vehicles of knowledge diffusion with the dissemination of research and discussions carried out by researchers - students and professors - from different areas of knowledge. They contribute, directly, to the institutionalized evaluation processes by adding up the items that constitute these processes, notably, carried out by the Coordination for the Improvement of Higher Level Personnel (CAPES).

Based on the Qualis Periodical Report (BRASIL, 2019, p.03), a scientific journal can be defined as,

(...) one of the types of serial publications, in the form of a periodical, bulletin, yearbook, etc., published in issues with a numerical and/or chronological designation, at pre-established intervals (periodicity), for an indefinite period of time, with the collaboration, in general, of several people, dealing with various subjects, within a defined editorial policy, and which is the subject of an International Standard Number (ISSN).

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The University of the State of Bahia (UNEB) has 26 (twenty-six) Graduate Programs and these offer 31 (thirty-one) courses between masters and doctoral - academic and professional - in the different identity territories of the State of Bahia¹, also has 10 scientific journals² linked to the Programs - all of them use the Open Journal System (OJS) as a platform for editing and publishing, in which each Graduate Program develops its own guidelines with the collegiate for the implementation and management of journals, based on the guidelines of CAPES.

In the context of journal management, one of the main challenges is the process of journal qualification, which implies in the fulfillment of technical criteria regarding the editorial flow and the bibliometric data that will enable the broad dissemination of the scientific production published in these vehicles.

This article has as its main objective to situate elementary points in the qualification process of a digital scientific journal of the PPGSS in the context of the Universidade do Estado da Bahia (UNEB), based on the experience with *Plurais Revista Multidisciplinar*³, a journal linked to the Graduate Program in Management and Technologies Applied to Education (GESTEC⁴), which publishes articles in the area of Education.

The study sought to identify indicators capable of demonstrating the initial process of qualification and internationalization of a journal, based on the issues and actions of *Plurais*

¹ To learn more, see <https://portal.uneb.br/ppg/pos-graduacao-stricto-sensu/>

² To learn more, see <https://portal.uneb.br/ppg/revistas-na-pos-graduacao/>

³ <https://www.revistas.uneb.br/index.php/plurais>

⁴ <https://portal.uneb.br/gestec>

Revista between the years 2018 and 2021. It is intended, here, to record the trajectory of the actions developed so that beginner journals in a field of knowledge can know a possible path to qualification.

2 IMPORTANT BIBLIOMETRIC ASPECTS FOR QUALIFICATION

Digital information and communication technologies are present in many different activities of educational management, operating from different standards and computational systems.

In the context of digital scientific journals, computerized systems are also present in the processes of management, dissemination and evaluation, increasingly associated with automatic collection of data on publications for comparisons, evaluations and classifications, considering quantitative criteria.

In this process of collecting and exchanging information from journal management systems, are the calculations and evaluations based on bibliometric indicators, increasingly used in the evaluation of the results of scientific production around the world.

Bibliometric belongs to the area known as Information Metrics Studies, which developed from the second half of the twentieth century onwards as a result of the efforts of information science in conjunction with other disciplines (mathematics, statistics, informatics, sociology) directed towards quantitative studies of science and analysis of the production of scientific knowledge (MELO, TRINCA and MARICATO, 2021).

In the survey by Melo Ribeiro (2017, p. 01), on the history of bibliometric, from the study of different authors, bibliometric analysis is defined as:

(...) one of the research techniques that focus on measuring, in a quantitative way, the scientific publications of an author or Higher Education Institution (HEI) in academic journals with arbitrated selection (SOUZA; RIBEIRO, 2013), through patterns and mathematical and statistical methods (FRANCISCO, 2011), using, thus, its results to develop forecasts and support decision-making (BORBA; HOELTGEBAUM; SILVEIRA, 2011). Given this panorama, one can see and understand that bibliometric is welcome in the context of investigations, mappings, explorations and analyses of various academic topics (VALE; LOPES, 2010).

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Bibliometric indicators are used to classify digital journals by counting the number of citations of published texts, which give rise to rankings based on pre-established calculations, as is the case of the ranking published by the *Google Academic*⁵ platform, which makes comparisons, taking into account the number of citations tracked on the Internet for the texts of a given journal, generating the so-called h-index to classify electronic journals by area of activity based on calculations that involve the number of citations of articles in a given period of time.

The *h-index* was described in 2005 by Jorge E. Hirsch, for the evaluation of researchers in the Physics Area, and became known in other areas and in the scientific environment to measure productivity and impact. As an example of its calculation, one can say that when the *h-index* is 10, it means that there are at least ten published articles, each with at least ten citations (THOMAZ, ASSAD e MOREIRA, 2011).

To a large extent, criticism of the h-index brings the questioning about the use of only this number to compare quality or productivity, since some mechanisms are able to influence or mask these values. Thomaz et al (2011) indicate self-citation, scientific age, and difference between areas with some of these mechanisms.

Thus, beyond the necessary criticism of the h-index, the advance in citation volume accounted for by this index has become one of the aspects increasingly pursued, with the

⁵ <https://scholar.google.com>

purpose of obtaining better classification in specialized rankings that expand its credibility and reach. However, it must be considered that an indicator should always be used together with other reference(s) so that the results are not given as absolute. Another indicator that has been used for the qualification of scientific journals are the indexers or the indexing databases that gather and disseminate scientific publications, using strict criteria for acceptance and permanence, including quality criteria such as editorial board; adopted system of peer review; scientific content; periodicity and punctuality of publication, standardization; maintaining institutions; endogeneity and interoperability (PEREIRA, RODRIGUES and SANTOS, 2020).

In this universe of digital scientific journals, the indexers are consolidated as a desired mechanism for dissemination and recognition of their publications. By entering different databases, the journals have their texts increasingly published, thus expanding their dissemination and, consequently, the possibilities of access, reading and citation.

This interoperability⁶ between digital journals and indexers is directly related to the computerized systems adopted and the quality of metadata - defined by the International Standard Organization (ISO) as data that describe context, content and structure of records and their management over time (BRANDT and VIDOTTI, 2019).

In the context of digital journals, the correct registration of metadata, that is, information about the texts, authors, digital identifiers in the publishing platforms, among other standards in the publication of texts, will ensure a level of quality capable of providing effective communication between the different computerized systems involved.

In Brazil, the digital journals associated with the *Stricto Sensu* Post-graduation are directly associated with the CAPES evaluation with the Qualis Periodical. For BARATA (2016, p.16),

The Qualis Periodicals (...) is one of the tools used for the evaluation of graduate programs in Brazil. Its function is to assist the evaluation committees in the process of analysis and qualification of the bibliographic production of the professors and students of the graduate programs accredited by Capes.

In the Quadrennium 2013-2016 the Qualis Periodical, in which the Journals were classified into three strata - A, B and C. In the Quadrennium 2017-2020 the discussions about this classification were significantly altered, and the strata changed to A (1-4) and B (1-4) and CAPES produced a new document with information about aspects of the journals to be classified in each stratum, improving the evaluation process.

In this last Quadrennium CAPES indicates a specific set of indexers among the requirements belonging to its evaluation process. These criteria often end up indicating the direction of the qualification process of the journals, which seek to meet the standards established for entry into national and international indexes. And, based on this entry, increase access, citation, classification in specialized rankings and the credibility of the journal within the academic scientific community.

Table 1 indicates the relationship between the number of indexers requested in the last evaluation process CAPES 2017 and the respective Qualis strata assigned (BRASIL, 2017, p. 05), which suggests to new journals the set of indexers to be obtained.

Table 1. Number of indexers by Qualis CAPES 2017 Stratum.

QUALIS CAPES STRATUM	INDEXERS
B ₄	At least 1 indexer
B ₃	At least 2 indexers

⁶ Interoperability can be understood as a characteristic that refers to the ability of diverse systems and organizations to work together (interoperate) in a way that ensures that people, organizations, and computer systems interact to exchange information effectively and efficiently. (<https://www.gov.br/governodigital/pt-br/governanca-de-dados/interoperabilidade>).

B2	At least 3 indexers
B1	At least 4 indexers
A4	At least 4 indexers, 1 of the following: Educ@, Scielo BR, Scopus, Redalyc, DOAJ, IRESIE, BBE, LATINDEX, Index Copernicus and Clase.
A3	At least 4 indexers, 2 of the following: Educ@, Scielo BR, Scopus, Redalyc, DOAJ, IRESIE, BBE, LATINDEX, Index Copernicus and Clase.
A2	At least 4 indexers, 1 of the following: Educ@, Scielo BR, Scopus, JCR/Web of Science.
A1	At least 4 indexers, 1 of the following: Scielo BR, Scopus, JCR/Web of Science.

Source: Produced by the authors with reference to the Quadrennial Evaluation Report - Education, 2017.

Among the criteria foreseen for the editorial flow present in the last evaluation of the Qualis Periodicals, the following stand out:

- Regular periodicity;
- Institutional diversity in the editorial board;
- Articles should come from different institutions;
- Quantity of Publications per year;
- Publication of articles in foreign languages;
- Quality of Review and Layout;
- Articles registered in the DOI system;
- Authors Affiliated to Foreign Institutions;
- Identification of authors with ORCID;
- Guaranteed access and preservation of all issues;
- Information about editorial management (Standards, List of reviewers, Indexers). (BRASIL, 2017, p. 05).

Given this context of demands in the qualification process, scientific journals in the Humanities, with a tradition of publishing in books, tend to present an evolution and adaptation to the current required standards more slowly, unlike the Health and Exact Areas which, traditionally, use Journals to publish their productions.

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3 ABOUT THE FOLLOW-UP OF A SCIENTIFIC JOURNAL

Based on a bibliographical and documentary survey, we sought to identify aspects that contributed to the qualification and indexing of Plurais between 2018 and 2021. It began by tracing, in the records of the Editorial Team, the actions carried out in this period, which could influence the process of its qualification, relying on the records of the OJS system and e-mails of Plurais Journal, in search of relevant information about the actions developed. We highlight the intense and persistent communication with indexers through e-mail exchanges in order to comply with the norms and standards established for the journal to integrate their respective catalogs.

From a Quali-Quantitative perspective, information produced both from numbers generated by bibliometric indexes (access volume and h-index) and formal aspects of editorial management, normally required for indexing acceptance and CAPES evaluation, were taken into consideration.

It is important to remember that this process is fundamental for the maturity in the follow-up carried out by the Editorial Team, because in it, there is a better understanding about the procedures to be adopted for the qualification of the Journals.

4 THE COURSE OF PLURAI'S JOURNAL IN THE 2018-2021 QUADRENNIUM

In 2016, after two years of interstice, the Plurais journal once again maintains its regularity in publication and becomes linked to the Graduate Program in Management and Technologies Applied to Education (GESTEC), at the State University of Bahia (UNEB). In this return, it obtains the B3 extract in the Education Area, in the Quadrennium 2013-2017.

In the period from 2018 to 2021 the Journal starts to focus on actions aimed at advancing in the number of indexers that favor the internationalization of the journal, as well as its expansion in the Qualis Periodical classification.

For this, the Editorial Team of the Journal used as a reference the criteria present in the Education Area Document established by the Quadrennial Evaluation of Periodicals of CAPES (BRASIL, 2019), which presents requirements for possible classifications.

Table 2 shows important requirements achieved by the management of Plurais, organized according to axes and year of implementation.

Table 2. Evolution of requirements for the qualification of digital scientific journals according to CAPES' Four-Year Evaluation of Journals.

AXES	REQUIREMENTS	YEAR
Editorial Flow	- Exogeneity in the Editorial Board; - Periodicity; - Peer Review; - Similarity Detection;	2016
Bibliometric	- Digital Identifiers: DOI attribution to texts	2017
	- Digital Identifiers: ORCID registration of the authors	2018
Indexers	- Diadorim; - REDIB.	2018
OJS Platform	- Upgrading the OJS to version X has enabled - Interoperability; - Specific Pluggins; - Qualification of the publications' metadata.	2019
Publishing	- Different Publication Formats: HTML and PDF.	2019
Layout	- Inclusion of pending metadata in the texts: Date of approval and publication; Inclusion of License.	2020
Indexers	- LATINDEX catalog - Summaries.org - DOAJ - IRESIE	2020
Archival Policy and Collection Integrity	- Clocks - Locks - Carinian Preservation Network: awaiting feedback.	2021
Indexers	Awaiting feedback from the following indexers: - Redalyc - Clase	2021

Source: Produced by the authors, 2021.

During this period, as adaptations were made and new standards were established, Plurais was able to gain credentials for approval in new indexers at the national and international levels. It is worth noting that, today, the change in the qualification of this Journal is visible, as well as its national and international reach in the visualization of the published articles.

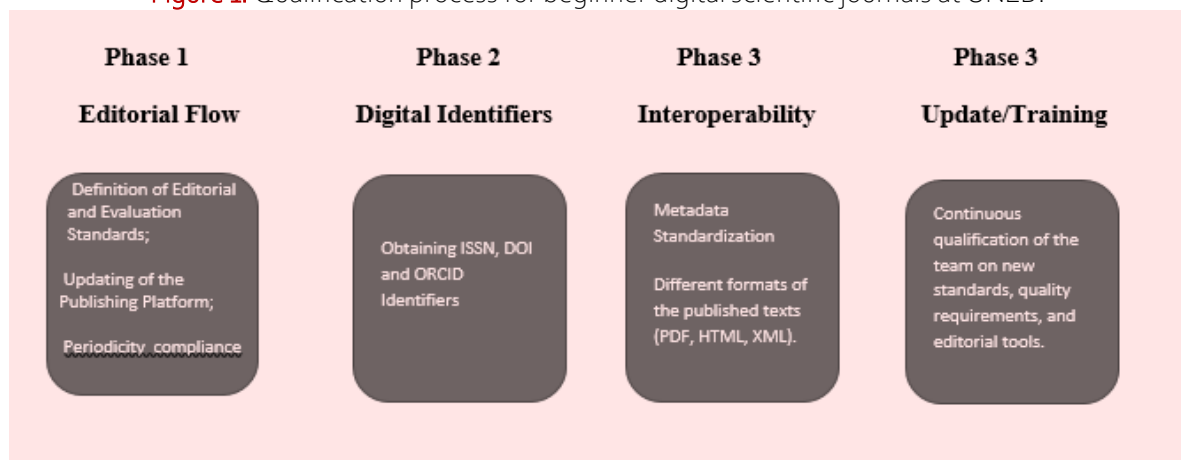
The Journal, in the improvement of the management of its flows and processes, now meets some criteria established by the Qualis CAPES, released in 2019:

- presents regular periodicity in the last 48 months;
- has an Editorial Board with 70% institutional diversity;
- it is present in at least 4 (four) indexers: DOAJ, Latindex, REDIB and IRESIE.
- publishes a minimum of eighteen (18) articles per year, guaranteeing institutional diversity of authors:
- maintains 80% of the articles linked to Institutions external to UNEB;
- registers all articles in the D.O.I. system.

Besides this, the journal presents good graphic quality, including on its website, and disseminates information about editorial management such as public calls for each issue to be published and clear indication of indexers.

From this experience, it was possible to elaborate the flow represented in Figure 1, which describes a possible path for Editorial Teams of newly created journals seeking to enter a continuous management process for their better qualification. The adopted path takes into consideration aspects of the editorial flow and the generation of bibliometric data.

Figure 1. Qualification process for beginner digital scientific journals at UNEB.



Source: Produced by the authors, 2021.

Still about the journal's follow-up process in the period 2018-2021, it should be noted that Plurais had institutional support for journal publication through the PAEP PÓS - PPG/2019⁷ Edict, with UNEB's own resources, which enabled actions that contributed to the management of the journal. The institutional support, either by encouragement or by internal policies for the publication of periodicals is fundamental for the qualification of the Editorial Teams' work, making voluntarism not imperative for the flows and processes of this follow-up.

The Institutional support constitutes as one of the factors responsible for providing the collaborators with a greater expertise regarding the qualified management of digital scientific journals, often reducing the cost of consultancy in the private sector with specialized companies for the necessary adjustments to expand the scope of the Journal. In this sense, the Programs and Edicts of Public Higher Education Institutions collaborate with the survival of their open access Digital Scientific Journals, from the aid to the maintenance of its infrastructure and the generation of specialized labor for the Institution itself.

5 ANALYSIS OF RESULTS

Between 2018 and 2021, Plurais had a notorious increase in its visibility, not only from the adherence to new indexers, but also its access by national and foreign researchers. These

⁷ To learn more, see <https://bit.ly/34v3llZ>

improvements were perceived from software that counters access to the electronic address of the journal, which will be presented later.

During this period, the *Plurais* journal also began to fulfill important parameters present in the guiding axes of the CAPES evaluation, among them:

- ✓ Increased adherence to Indexers and Bibliometric Indicators;
- ✓ Information of a clearly defined Editorial Policy - thematic scope, target audience, scope and objectives of the journal;
- ✓ Online dissemination for each issue, through public calls, contained on the Journal's website; as well as procedures for receiving articles;
- ✓ Description of the quality control system - plagiarism detection policy, blind peer review, reference to ABNT editorial technical standards, forms of access;
- ✓ Institutional diversification of authors - local, regional, and international.
- ✓ Expansion of the Editorial Board with diversified institutional affiliation of its members - national and international;
- ✓ Maintenance of regular and updated periodicity;
- ✓ Identification of authors, with titles, institutional affiliation, e-mail, persistent identifiers of authors (Orcid);
- ✓ Identification of articles by DOI;
- ✓ Inclusion of the date of receipt and approval of each article;
- ✓ Guarantee of access and preservation of the numbers relative to the period established for each stratum.

A successful strategy for maintaining the regularity of the issues and their thematic diversity was to invite professors and researchers to organize the issues of the journal to be published. With a noted bibliographic production in the thematic of the issue to be published - internal to the Institution and from other Institutions - the contributions received were fundamental for the articulations in work networks, both national and international.

The Editorial Team also sought to qualify its actions by participating in events promoted by National Editors Forums, such as the FEPAE-NE, focused on journals in the Education Area; and the Forum of Scientific Editors, which brings together editors from different areas, under the leadership of editors with greater experience with the flows and process of journal monitoring.

Besides this, a Webinar was produced through the Dean of Research and Graduate Studies (PPG UNEB), entitled Journal Management, with the participation of experienced editors from different areas and different classifications of their journals. One of the intentions of this Webinar is to make public guidelines and information provided by the Editors.

In order to demonstrate in numbers the evolution and the increase in visibility of *Plurais* Journal between the years 2018 and 2021, we sought to select numerical criteria that could indicate the advance in its current quality in relation to the previous Quadrennium. With this objective, in this work, the following quality indicators were chosen: Access Volume per year, Total Indexers, Google h Citation Index, because they are widely valued in the evaluation of Journals and make it possible to demonstrate the situation of a Journal through a simple quantitative comparison whose values are easy to identify through the platforms already used by the Journals.

Table 3 presents a comparison of these quality indicators of *Plurais* Journal in two distinct moments: end of the previous four-year period (2013-2017) and the end of the current four-year period (2018-2021).

Table 3. Bibliometric indicators of quality observed for the analysis of the journal studied.

INDICATORS	2018	2021
Access Volume - Clustmaps platform	17.989 access	29.103 access
Total Indexers	0	5
h-citation index - Google Scholar	1	7

Source: Produced by the authors, 2021.

Thus, an evolution of the three bibliometric indicators used between 2018-2021 can be noted, which demonstrates a tendency to advance in the quality of the *Plurais Journal*, especially with regard to the Total Indexers and the h Index, indicating a growing adaptation to the main standards required for current digital journals, as well as a considerable increase in the volume of reads/citations respectively.

It is also important to highlight that this advance results from the Editorial Team's engagement with the main national networks in the area, such as FEPAE-NE. As well as the success regarding the articulation with different and qualified internal and external actors of the Institution, ensuring the maintenance of the high level in the organization of numbers and texts.

These positive results were also a consequence of the actions developed throughout this period in relation to the qualification courses for the Editorial Team, allowing a greater understanding of the main improvements in the metadata records and the management of the journal as necessary requirements for approval in indexing. Where this access to such indexers promotes a direct increase in bibliometric indicators.

6 FINAL CONSIDERATIONS

This article sought to argue the importance of scientific journals linked to Postgraduate Programs *Stricto Sensu* (PPGSS), in view of their role as vehicles for dissemination and diffusion of knowledge, from the visibility of research and discussions held by researchers from different areas of knowledge. Furthermore, these periodicals contribute to the evaluation processes, composing items that constitute such processes.

The University of the State of Bahia (UNEB), currently, has twenty-six PPGSS that offer thirty-one courses between Master's and Doctorate - academic and professional. Of these, ten have scientific journals - all using the Open Journal System (OJS) as their editing and publishing platform.

In the context of journal management, one of the main challenges is the process of journal qualification, which implies in the fulfillment of technical criteria regarding the editorial flow and the bibliometric data that will enable the broad dissemination of the scientific production published in these vehicles.

This article intended to situate elementary points for the qualification process of a digital scientific journal linked to the PPGSS in the context of this University, based on the experience with the *Plurais journal*, conducting a study that sought to present the path of the qualification process and internationalization of a journal, based on the issues and actions of this journal between the years 2018 and 2021. The study made it possible to describe the path taken by the Editorial Team of *Plurais Journal* in the search for improvements to its qualification and internationalization.

The results presented generate positive expectations for the Quadrennial CAPES evaluation (2017-2021), with regard to the Qualis Periodical, to the extent that the Journal began to meet important criteria related to periodicity, volume of texts published and indexers. Besides this, other indexing requests have been forwarded, which can guarantee new acceptances, which will expand even more the reach of access to the published texts.

The current status of *Plurais* continues to contribute positively with the results of the Postgraduate Program to which it is linked, taking into account the CAPES evaluation for this Quadrennium. In the last evaluation, the Program obtained a grade of 4 out of 5, and is still

seeking to advance to the highest score in the evaluation. Furthermore, the journal continues to fulfill its main objective, which is to remain as one of the institutional vehicles for the dissemination of scientific production and collaboration with the open access science movement.

There are great challenges that the editorial team will face in the coming years in order to maintain what has been achieved and, from there, advance in the process of qualification. Among the challenges to be overcome are: Editorial Flow still dependent on tools external to the OJS; Editorial Team reduced without exclusive dedication to the journal; Direct involvement of the Programs Management in the dissemination, reading and citation of their texts; Creation of interactive channels with readers through social networks; Availability of published texts in XML format requested by some indexers; Institutional Financial Support for actions of qualification of the Journal and its Editorial Team.

To overcome these challenges, we understand that it is of great importance to have a continuous process of institutional support for scientific journals, starting with the strengthening of the existing Programs/Dictations, as well as an articulation between journals, in order to form an institutionalized collaborative network for the exchange of information and the continuous improvement of these journals, including strategies for increasing the dissemination, reading and citation of publications.

It is emphasized, then, that the qualification process of scientific journals requires ample discussion, training and continuous updating on the part of the Editorial Team, as well as the participation of professionals specialized in Information Technology and with skills that allow them to meet mainly the technical criteria linked to bibliometrics with the current standards for the formats of published texts.

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