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Evolution and future perspectives of scientific journals in Peruvian public universities

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ABSTRACT

In Peru, scientific journals are in constant growth, as they seek to make visible the scientific work of licensed public universities. In this sense, the objective of this research was to evaluate the historical evolution and future perspectives of scientific journals in Peru. The research was carried out by reviewing the official web pages of each institution, taking into account the official list of universities authorized by the Superintendencia Nacional de Educación Superior Universitaria (SUNEDU). We reviewed journals that are included in the Sistema Regional de Información en Línea para Revistas Científicas de América Latina, el Caribe, España y Portugal (Latindex Catálogo 2.0), SciELO, Web of Science (WOS) and Scopus. Data analysis was performed by tabulation in Excel and Minitab 19. We found 205 scientific journals, 51 are indexed in at least one database (Latindex Catálogo 2.0, SciELO, WOS, or Scopus) and 154 in no database, which means that the editorial teams have an arduous task. Only four journals are indexed in Scopus (three belong to the Universidad Nacional Mayor de San Marcos and one to the Universidad Nacional de Trujillo). It is concluded that the evolution of the journals is a function of their Google Scholar H index. Likewise, support for public universities should be increased to promote the indexing of scientific journals to generate greater visibility of research at regional, national, and international levels of public universities in Peru. In this sense, future perspectives include incentive policies for researchers who publish in local journals.

1. Introduction

Throughout the world, universities change society and are the change and development through the generation of new knowledge, with the aim of preparing highly qualified professionals (Ahmmed, 2013). In this sense, the intellectual production of a country and its scientific-technological advances need to be based on new experiences among researchers and students. Therefore, scientific journals play an important role in the dissemination of science (Bosch and Serés, 2015). However, many journals face political and cultural problems and lack of budget, the latter being a constant struggle of the institutions in order to preserve the knowledge (Ofori-Adjei et al., 2006). Latin American journals indexed in SciELO, Scopus, and WOS in the field of engineering and technology are represented by at least 10%, results that are associated with public spending on research, indicating the importance of government investment in the presence and impact of journals (Marín-Velásquez and Arrojas-Tocuyo, 2021). In Peru, scientific research is the main activity of universities, that involves developing in all aspects

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of the university environment, where the university generates and disseminates scientific knowledge through the cooperation of teachers and students in order to solve problems of society (Boh et al., 2016). Likewise, it has become a lifelong learning, recognized by the University Law N°30220, which mentions research as one of the fundamental pillars of Peruvian universities (Lavalle and De Nicolas, 2017). Its fulfillment is important for the licensing of universities and the accreditation of academic programs (García-Serna et al., 2023).

The scientific journal is a permanent publication that provides the academic and scientific community with original scientific articles and information related to the development, research and updating of a subject area; therefore, scientific journals are of vital importance for the dissemination of results both nationally and internationally, which is recognized by the scientific society for its indexing processes and peer review (Ware and Mabe, 2015; Castro-Rodríguez, 2019). All scientific journals are edited by high-level specialized publishers however, universities also publish journals and are judged in substantial part by their scientific production, represented in the quantity and quality of the scientific articles that their academics publish (Gerding, 2020). The editorial process of a scientific journal is a set of tools that allow the author and editor to analyze from the reception of an article to its publication (Kudryashov and Kirsh, 2019). Editing journals is a great responsibility and must be carried out with dedication and integrity, as the selection of scientific articles with methodological flaws can have serious consequences on the results. In this context, good editorial practices should be prioritized to avoid bias in research (Sepúlveda-Vildósola et al., 2023), consequently, journals comply with strict editorial processes (science communication practices) for the management of indexing to recognized databases (Akça and Akbulut, 2021). There are several indexing systems, the most widely used and recognized being Dialnet, Latindex Catálogo 2.0 (LC 2.0), DOAJ, Scielo, Scopus and WOS (Pavas, 2017). Indexing is the orderly recording of information and data to develop an index, so the content must be related to the search terms. An indexed journal is listed in a worldwide database that provides confidence to readers; it periodically publishes research where it will have greater reach and reputation (González-Sanabria et al., 2019), thus increasing its impact factor for further development and exchange in the scientific field (Bendels et al., 2018). In Peru, there is a high percentage of journals without indexing and others are in the process of being indexed. In this sense, the objective of the research was to evaluate the evolution and future prospects of scientific journals of public universities in Peru.

2. Methodology

The study was of a mixed descriptive type, because it described the historical evolution of the scientific journals of the public universities of Peru, through a bibliographic review. Qualitative approach, because the Peruvian journals included in their web pages and related regulations were studied (Torres-Slimming et al., 2019).

The review was carried out based on the web pages of each public university licensed by SUNEDU, the body that determines which universities meet all the basic quality conditions. The SUNEDU Board of Directors determines the licensing period based on a quantitative and qualitative evaluation of the research (Mayta-Tristán et al., 2019). The journals included in the web portal were identified as being hosted in Open Journal Systems (OJS), an open-source system distributed as free software. It allows the management and publication of journals and periodicals (serialized) documents on the Internet (Owen and Stranack, 2012). The search was conducted during the months of December 2022, January, and February 2023 (three months). The international ISSN portal (https://portal.issn.org) was reviewed as a reference to have an estimate of the registered journals of each public university. Through the review of the Latindex, Scielo, Scopus, and Web of Science portals, the non-indexed journals were counted, the reason for the verification of the indexing of the journals (4 databases): Latindex Catalog 2.0 was the purpose of reviewing the 38 characteristics of editorial quality organized in five groups (basic characteristics, presentation characteristics, management, and editorial policy characteristics, content characteristics, characteristics of online journals) and dates of indexing to Latindex Catalog 2.0. Also, the Scientific Electronic Library on Line (Scielo), which represented since 1997 and contains scientific information in full text from Latin America, the Caribbean, Spain, and Portugal, in addition, the databases Web of Science and Scopus were verified, as they are the most used databases to evaluate journals in terms of productivity and citations worldwide (Aghaei et al., 2013).

The review of the academic Google h-index (number of citations of publications of a journal that have been cited) was reviewed for all journals selected for this study, as well as the number of academic Google citations (only journals whose h-index was visible and the web active at the time of the search were taken into account) (Babineau et al., 2014). The journals that were only created and did not have an issue published to date (February 2023) were excluded, as well as academic journals whose production was in the form of compilations, which are not hosted in OJS. For data analysis, Excel was used to sort and clean the information and the statistical software Minitab 19 Spanish version was used to generate graphs.

3. Results and discussions

Of the 4 databases, 51 journals are indexed in at least one database (LC 2.0) and 154 in none (Fig. 1), with the result that scientific journals have a limited

presence and low visibility on the web (Allen and Weber, 2015). The subject area of medicine represents the largest scientific production in Peru and the publication of students is scarce, in addition to this, the country only invests 0.08% of the Gross Domestic Product (GDP) in research and development, which is a low percentage compared to other South American countries (Sevillano-Jimenez et al., 2023). On the other hand, a change in the university reform is being initiated with the objective of strengthening research capacities and research programs (Barreto et al., 2023) as time goes by, it is expected that the percentage of non-indexed scientific journals will decrease, thus increasing the visibility, reputation, scope, and impact of articles worldwide (Hedt-Gauthier et al., 2019).

The number of scientific journals indexed in LC 2.0 is higher than the rest of the indexes (SciELO, WOS, and Scopus), this could be due to the fact that the 38 basic quality indicators are more accessible for compliance.

There are 13 scientific journals indexed in Scielo, 5 in WOS, and 4 in Scopus (Fig. 1), they are more likely to receive scientific articles due to their greater coverage, the prestige of the indexing, and the validity of the Registro Nacional Científico, Tecnológico y de Innovación Tecnológica (RENACYT) regulation that scores the publications in the mentioned databases to qualify as a Consejo Nacional de Ciencia, Tecnología e Innovación Tecnológica (CONCYTEC) researcher, in turn, this institution grants a 50% compensation to part of their salary to professors recognized as researchers, as determined by the Dirección de Políticas para el Desarrollo y Aseguramiento de la Calidad de la Educación Superior Universitaria (Vega-Huerta et al., 2023).

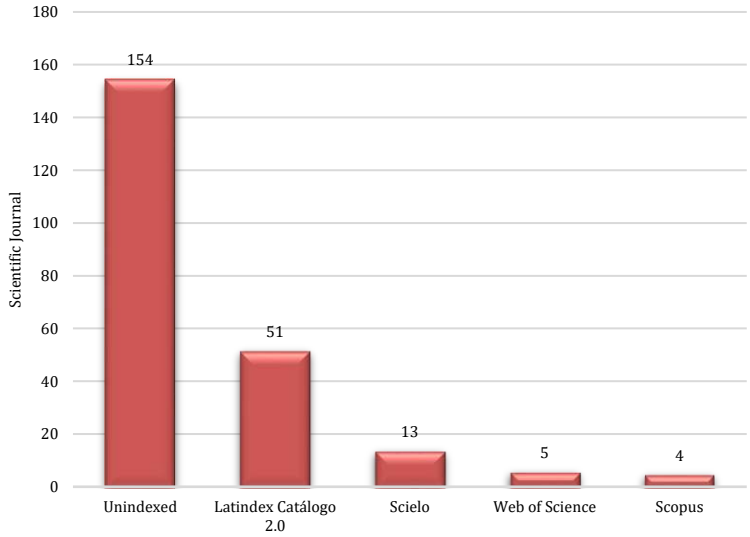


Fig. 1: Indexing of scientific journals

Regarding compliance with the indexing characteristics in LC 2.0, the Basic Characteristics were met by all 51 journals identified, on the other hand, in the Management and Editorial Policy Characteristics, 11 journals did not meet Characteristic 16 (Documents with external authorship) (Fig. 2a). This could be due to the lack of incentives for researchers to support journals that are in the process of indexing to more demanding databases. While in the Online Journal Characteristics, 39 journals did not meet Characteristic 34 (Interactivity services with the reader) (Fig. 2b). In this sense, publishers should work to implement interactivity services with the public, this implies facilitating readers to be informed of what is published; presence in academic social networks; spaces for comments; use of forums for discussion of content. It is evident that the integration of a greater number of digital tools should be encouraged.

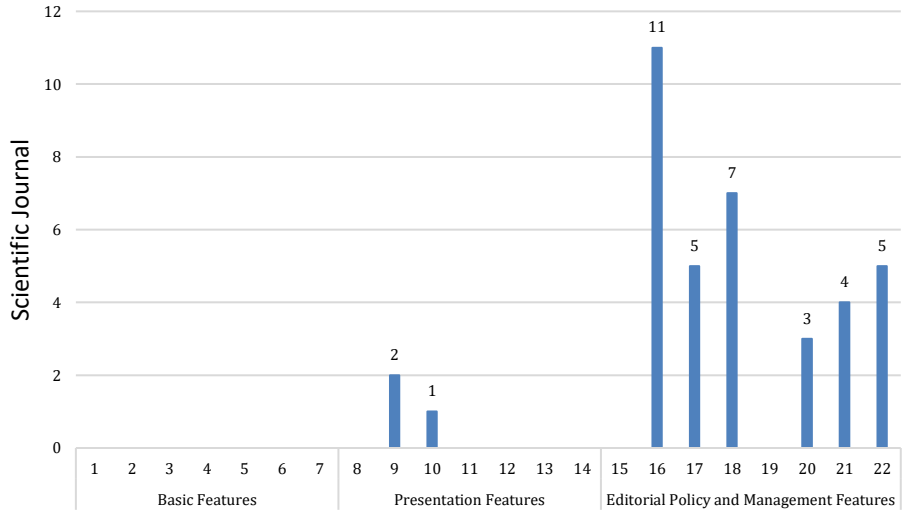
In recent years, the number of scientific journals in national universities has increased due to the fourth basic quality condition (lines of research) that universities must meet for their institutional licensing (Dextre-Chacón et al., 2021), likewise, the objective of the University Law 30220 in its article 79 indicates as the main function of research by teachers, likewise, article 48 mentions the obligation of universities in the promotion and production of new knowledge, both teachers and students and graduates (Sotomayor-Beltran, 2020). However, there is an uncertain future for scientific journals indexed in LC 2.0 since researchers prefer to publish in other databases (SciELO, WOS, and Scopus) due to the incentives established in the new CONCYTEC regulations, where publishers have a great challenge to position scientific journals (objectivity, credibility and quality of content) and index them in a prestigious database. In addition, there is a lack of budget allocated for the dissemination of scientific production through journals in the national universities of Peru.

The Universidad Nacional Mayor de San Marcos (UNMSM) has 8 journals indexed in one of the 4 databases (LC 2.0 and SciELO, WOS, and Scopus) positioning it as the only public university that has

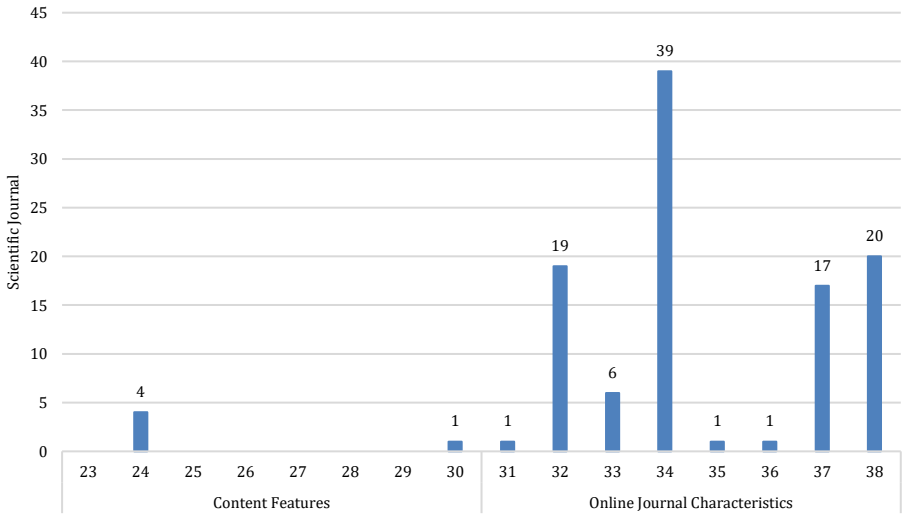
all its scientific journals indexed (Table 1), on the other hand, 2 journals are indexed in the 4 databases, this is because they prioritize scientific research and that in turn places it in the second position of scientific productivity in Peru, in addition, it is one of the main universities that has dynamics and structure for the training of student researchers through research seedbeds. The journal Horizonte de la Ciencia had the highest h-index in Google Scholar of 28 and 2525 citations, in second place, is the journal Puriq with an h-index of 21, with 1515 citations and in third place is the journal Investigación Valdizana with an h-index of 16 and 1080 citations. Journal impact factors are defined as the average number of citations received in a given year for articles published in the journal in the previous 2 years. In that sense, Google Scholar and metrics (Hirsch h-index) is a new source for evaluating the impact of scientific journals (Liu et al., 2013). There are only 4 scientific journals from public universities indexed in Scopus, which is a low number in relation to the 47 public universities that exist in Peru, this differs from Colombia that has 31 official universities and has 99 scientific journals indexed in Scopus (Cricelli et al., 2018). The aforementioned is related to scientific production in Scopus, in the period 2010 to 2019, Peru only contributed 2% of the total production of South American countries, while Colombia contributed 8%. Therefore, policies for journal management should be implemented where editors help promote transparency in research and broader access to a growing scholarly record for the coming years (Jackson, 2021).

Scientific production in Peru in prestigious databases (WOS and Scopus) is growing slowly, which is reflected in the policies they have to index scientific journals, representing a lack of scientific culture, therefore, policies for scientific publication and promotion of research should be improved (Hansford et al., 2022; Abidin et al., 2023).

Table 2 shows the indexing dates of the scientific journals, except for the journals indexed in WOS-ESCI, since they do not have access to the database. However, there was no evidence of journals indexed in the Web of Science Core Collection. With respect to the indexing in Scopus, all are in the Q3 Quartile.



(a)



(b)

Fig. 2: Compliance characteristics in Latindex Catálogo 2.0

Table 1: Journals indexed by public universities in Peru (open access journals)

University	ISSN		Journal	Date of indexation in Latindex Catálogo 2.0	Google Academic h-index	Number of citations (Google Academic)
	Electronic	Print				
Universidad Nacional San Luis Gonzaga	2225-6989	2223-2893	Revista Médica Panacea	3/01/2020	Not visible	NR
Universidad Nacional Federico Villarreal	2311-2212	2310-4767	Catedra Villarreal	13/09/2022	Not visible	NR
	1994-9073	1816-0719	The Biologist	31/07/2009	Not visible	NR
	1995-1043	2218-6425	Neotropical Helminthology	31/07/2009	Not visible	NR
Universidad Nacional José Faustino Sánchez Carrión	2307-2121	2305-4352	Revista Big Bang Faustinanio	2/06/2014	Not visible	NR
	2706-9397	NR	Peruvian Agricultural Research	10/11/2021	Not visible	NR
Universidad Nacional de Tumbes	2414-1046	1816-7667	Manglar	22/07/2020	10	398
Universidad Nacional Hermilio Valdizán	1995-445X	1994-1420	Investigación Valdizana	9/04/2008	16	1080
	2616-6097	NR	Revista Peruana De Investigación En Salud	17/12/2018	13	492
	2617-4332	NR	Gaceta Científica	17/06/2020	9	377
	2707-5419	2306-4072	Identidad	20/10/2022	2	20
Universidad Nacional de San Antonio Abad del Cusco	2709-8540	2519-7592	Revista De La Facultad De Derecho Y Ciencias Políticas	11/05/2021	Not visible	NR
	2709-829X	NR	Ambiente, Comportamiento Y Sociedad	11/03/2021	Not visible	NR
	2708-2660	2412-2297	Qeuña	16/03/2021	Not visible	NR
	2707-1197	NR	Yachaq	27/08/2021	Not visible	NR
Universidad Nacional del Centro del Perú	2413-936X	2304-4330	Horizonte De La Ciencia	21/03/2019	28	2525
	2706-6053	NR	Socialium	27/02/2020	Not visible	NR
Universidad Nacional Autónoma de Tayacaja "Daniel Hernández Morillo"	2617-9156	NR	Tayacaja	13/12/2019	4	42
	2709-2275	NR	Revista De Investigación Científica Y Tecnológica Llamkasun	27/11/2020	5	85
Universidad Nacional Santiago Antúnez de Mayolo	2616-9541	2070-836X	Aporte Santiaguino	7/03/2019		NR
Universidad Nacional de Ucayali	2664–8423	1992-5166	Investigación Universitaria	24/11/2020	Not visible	NR
Universidad Nacional de Trujillo	2313-3171	NR	Rebiol	12/06/2019	Not visible	NR
	2306-6741	2077-9917	Scientia Agropecuaria[l]	30/01/2017	Not visible	NR
	2522-6150	1028-7272	Revista Médica De Trujillo	20/06/2019	Not visible	NR
	2411-1783	NR	Selecciones Matemáticas	6/01/2017	Not visible	NR
	2617-3735	1681-7230	Sciéndo	28/09/2020	Not visible	NR
Universidad Nacional Intercultural Fabiola Salazar Leguía de Bagua	2709-3190	2709-3182	Dékamu Agropec	27/07/2022	1	5
Universidad Nacional Jorge Basadre Grohmann	2617-6033	2304-8891	Ciencia & Desarrollo	24/09/2019	13	917
	2617-6068	2077-0014	Revista Médica Basadrina	25/09/2019	9	403
	2617-6041	2312-9115	La Vida Y La Historia	25/09/2019	4	98
	2664-4649	2664-1216	Revista Odontológica Basadrina	9/12/2020	11	327
	2708-6062	NR	Economía Y Negocios	19/01/2021	5	100
Universidad Nacional de San Cristóbal de Huamanga	2709-8761	2710-0243	Revista Educación	31/01/2022	Not visible	NR
Universidad Nacional Mayor de San Marcos	1810-9993	1560-9146	Industrial Data[q]	4/04/2006	Not visible	NR
	2071-5072	0378-4878	Letras[l]	23/07/2014	Not visible	NR
	2413-2659	1729-9721	Lengua Y Sociedad[q]	18/05/2021	Not visible	NR
	1609-8196	1560-9103	Quipukamayoc[q]	27/11/2018	Not visible	NR
	1609-7475	1560-909X	Revista De Investigación En Psicología[q]	13/08/2020	Not visible	NR
	1682-3419	1609-9117	Revista De Investigaciones Veterinarias Del Perú – RIVEP[L]	13/08/2020	Not visible	NR
	1727-9933	1561-0837	Revista Peruana De Biología[l]	29/07/2020	Not visible	NR
	1609-9419	1025-5583	Anales De La Facultad De Medicina[q]	7/11/2005	Not visible	NR
Universidad Nacional de Jaén	2522-3240	2306-9805	Pakamuros	25/03/2021	Not visible	NR
Universidad Nacional del Altiplano	2313-2957	2306-8582	Revista De Investigaciones Altoandinas[a]	27/07/2016	Not visible	NR
	2077-8686	1997-4035	Revista De Investigaciones	26/10/2018	4	53
	2523-0840	2072-0572	Semestre Económico	1/08/2019	Not visible	NR
Universidad Nacional de Ingeniería	2309-0413	0375-7765	Tecnia[q]	20/11/2018	Not visible	NR
	2616-4949	2312-7562	Devenir[q]	6/05/2020	Not visible	NR
Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas	2520-9760	2520-5145	Revista De Investigación De Agroproducción Sustentable	10/01/2019	9	334
Universidad Nacional Autónoma de Huanta	2707-3602	2664-4029	Puriq	17/06/2020	21	1515
Universidad Nacional Agraria la Molina	2519-7398	0255-0407	Anales Científicos	25/04/2017	7	157
	2616-4477	NR	Peruvian Journal Of Agronomy			NR

NR: Not reported; l: Journal indexed in LC 2.0, SciELO, WOS, and Scopus; a: Journal indexed in LC 2.0, SciELO, and WOS; q: Journal indexed in SciELO and LC 2.0; e: Journal indexed in SciELO and WOS

Table 2: Evolution of scientific journals sharing indexing

Scientific journal	Admitted SciELO
Revista De Investigaciones Veterinarias Del Perú[l]	January 2006
Revista Peruana De Biología[l]	January 2006
Anales De La Facultad De Medicina[q]	January 2006
Ecología Aplicada[e]	January 2006
Scientia Agropecuaria[l]	January 2014
Letras[l]	June 2015[l]
Revista De Investigaciones Altoandinas[a]	March 2017
Tecnia[q]	December 2019
Devenir[q]	April 2021
Industrial Data[q]	October 2021
Lengua Y Sociedad[q]	August 2022
Revista De Investigación En Psicología[q]	August 2022
Quipukamayoc[q]	September 2022
Scientific Journal	Indexing
Scientia Agropecuaria[l]	Emerging sources citation index
Revista De Investigaciones Veterinarias Del Perú[l]	Emerging sources citation index
Revista De Investigaciones Altoandinas[a]	Emerging sources citation index
Ecología Aplicada[e]	Emerging sources citation index
Letras[l]	Emerging sources citation index
Scientific Journal	Admitted to Scopus (quartile)
Revista Peruana De Biología	1998 (q3)[l]
Revista De Investigaciones Veterinarias Del Perú	1999 (q3)[l]
Scientia Agropecuaria	2019 (q3)[l]
Letras	2021 (q3)[l]

l: Journal indexed in LC 2.0, SciELO, WOS, and Scopus; a: Journal indexed in LC 2.0, SciELO, and WOS; q: Journal indexed in SciELO and LC 2.0; e: Journal indexed in SciELO and WOS

4. Conclusion

The scientific journals of public universities in Peru follow a series of criteria to be indexed in prestigious databases, which requires constant work and dedication on the part of the editors. The study revealed that 154 journals do not appear in any database and only 4 journals are indexed in Scopus (3 belong to the Universidad Nacional Mayor de San Marcos and one to the Universidad Nacional de Trujillo). There has been a great progress in the number of citations for the journals that are still in Latindex, which is a good indicator for the future indexing of these journals.

Finally, as a future perspective, economic support should be increased to promote the indexing of scientific journals in order to increase the visibility of research at the regional, national and international levels of public universities. As well as the implementation of incentives for national researchers to contribute their studies in favor of the improvement of local journals.

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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