Evolution of scientific research in the Educitec Journal: a bibliometric analysis (2015-2021)

Iandra Maria Weirich da Silva Coelho   https://orcid.org/0000-0003-3513-962X
Instituto Federal do Amazonas
E-mail: iandra.coelho@ifam.edu.br

Abstract

This paper presents a bibliometric analysis of the Educitec Journal (Studies and Research on Technological Education), from 2015 to 2021. It is exploratory research, of a quantitative nature, which is carried out through the observation and analysis of a corpus composed of 323 works. Through the adopted methodology, analyzes are carried out referring to the following bibliometric indexes: evolution and quantity of articles (2015 to 2021), research genre, main subjects addressed in the investigations, level and modality of implementation of the educational proposals, link institutional, authorship by geographic region and keywords used by the authors. The results provide the evolutionary profile of the research published in the journal, highlight the thematic concentration of the journal in the Teaching Area, focus on the diversity of sub-areas and curricular components addressed in the investigations, highlight the need to promote strategies to expand dissemination and reach in different Brazilian geographic regions as well as in international.

Keywords: Scientific knowledge. Scientific production. Bibliometric analysis.

Resumo

Este artigo apresenta uma análise bibliométrica da Revista Educitec (Estudos e Pesquisas sobre Ensino Tecnológico), no período de 2015 a 2021. Trata-se de uma pesquisa exploratória, de caráter quantitativo, que se realiza por meio da observação e análise de um corpus composto por 323 trabalhos. Por meio da metodologia adotada, são realizadas análises referentes aos seguintes índices bibliométricos: evolução e quantitativo de artigos (2015 a 2021), gênero das pesquisas, principais componentes curriculares abordados nas investigações, nível e modalidade de implementação das propostas educativas, vinculação institucional, autoria por região geográfica e palavras-chave utilizadas pelos autores. Os resultados fornecem o perfil evolutivo das pesquisas publicadas na revista, ressaltam a concentração temática do periódico na Área de Ensino, com foco na diversidade de subáreas e componentes curriculares abordados nas investigações e evidenciam a necessidade de fomentar estratégias para ampliar a divulgação e alcance em distintas regiões geográficas brasileiras e no âmbito internacional.

Palavras-chave: Conhecimento científico. Produção científica. Análise bibliométrica.

Introduction

This paper aims to characterize the scientific results of the Educitec Journal (Studies and Research on Technological Education), based on publications carried out in 2015, the date of creation of the journal, to 2021, rescuing the trajectory of this journal and providing a diachronic and bibliometric analysis.

In this context, the electronic scientific journal stands out as "[...] a strong ally of the academic teaching and research communities, providing an agile and privileged space for both the construction and dissemination of the knowledge produced" (REGO PIVA, 2020, p. 17).

Considering that "currently it is observed that journal is one of the most used scientific communication channels - and why not say, the most credible - by researchers in the dissemination of research [...] with effective speed and ease of access" (REGO PIVA, 2020, p. 20), it is justified to carry out studies that deal with contributions and implications that can help to present the quantitative and qualitative scenario of what is being published in scientific journals.

Considering that "[...] it is one of the most used scientific communication channels - and why not say, the most credible - by researchers in the dissemination of research [...] with effective speed and ease of access" (REGO PIVA, 2020, p. 20), it is justified to carry out studies to broaden the understanding of the disseminated knowledge, allow the identification and mapping of indicators that provide subsidies for the (self) evaluation of scientific journals, both internally and externally, contribute to the evaluation undertaken for the *Qualis* base in relation to the qualification of scientific production and assist in the presentation of the quantitative and qualitative panorama of the evolutionary profile of published research.

This type of mapping can help to identify the main characteristics of the journal and seek improvements "[...] to try to ensure quality in the process of development and improvement of science and ensure that what is being produced and published is relevant and reliable" (COSTA; YAMAMOTO, 2008, p. 14).

From this perspective, it is highlighted the importance that bibliometric analyzes have accomplished, evidencing "a very relevant weight for journals and researchers, since much of the scientific production is based on its dissemination and on the impact of publications and researchers who publish in them" (LÓPEZ; VÁZQUEZ; SARASOLA, 2015, p. 66).

Authors such as Vázquez-Cano, López-Meneses and Cobos-Sánchiz (2015) point out the relevance of these analyses, stating that each year numerous bibliometric studies are published, both in journals in the field of Education and in other areas.

Bibliometry enables a computerized calculation for quantitative applications and has been used as a method of analyzing and mapping articles. Through this analysis, it is possible to visualize and evaluate the production and dissemination of knowledge, offering data and indicators, "[…] using different publication information, for example, keyword, research by institute, and country origin, as actors in a network, in order to understand the research knowledge" (SU; LEE, 2010, p.68).

Other reasons are the need to survey the journal's potential and limitations, which may allow the creation of an editorial development plan to overcome the low performance in some aspects and sustain the growing performance in others. In addition, expand editorial quality, increase the impact of citations and encourage constant improvement in quality processes related to the publication, evaluation, and dissemination of scientific production in the field of Education.

The data from the bibliometric study conducted in Educitec, aims to measure the contribution of scientific knowledge derived from publications in the field of Education, to understand the development of scientific production in the area. Also, it provides data to enable the evaluation and re-elaboration of editorial policies and the adoption

of new strategies, overcoming the limitations found, improving the journal qualities, understanding objectively the specifics of the editorial process and enabling the identification of the main research trends and subjects for further investigations.

In this sense, the objective of this study is to present an overview of the scientific production and evolution of Educitec, during the years 2015 to 2021. Therefore, some relevant issues were identified to achieve this objective: i) What is the frequency and quantity of papers between the years 2015 to 2021?; ii) What are the institutional links of the authors?, iii) What is the scope of the geographic areas? iv) What are the main subjects addressed in the researches?, v) To what levels and types of teaching are the researches being applied?, vi) What is the thematic spectrum of the journal?.

To deal with such issues, a bibliometric analysis is developed, considering the observation and analysis of documents, using quantitative techniques. From an exploratory perspective, the research universe is taken to be the works published during the mentioned period (except the reviews).

Brief history of Educitec Journal

Educitec is a scientific journal with open access, with its first publication in 2015. This journal is linked to the Postgraduate Program in Technological Education, of the Federal Institute of Education, Science and Technology of Amazonas (IFAM).

Since then, it has been developing and improving its editorial policies every year, taking into account ethical criteria and principles of integrity and transparency, according to the Good Practice Guidelines of the *Committee on Publication Ethics* (COPE), as well as joining the Open Science movement. This way, it considers new criteria, policies, procedures for evaluating journals and collaborative initiatives for the production, dissemination and use of scientific knowledge expanded and accessible to all, aiming to make the scientific process more democratic, transparent and inclusive.

The journal's mission is to disseminate academic-scientific production and provide the generation of new knowledge related mainly to teaching and learning and the different factors that interfere with it, with thematic focuses on technical and technological education, through the publication of research that deals with the methodologies used in the construction of educational products, challenges in the development of educational products, proposals for training processes for teachers, creation, application, and evaluation of pedagogical means and resources for the optimization of specific knowledge for the teaching-learning process, as well the development of science in the field of Education, raising reflections and discussions.

Since 2020, it has adopted the continuous publication modality, with the commitment to speed up the dissemination of scientific communication, maintaining ethical standards throughout its evaluation process, peer review, and publication of scientific articles, aiming to "[…] increase the agility of publication of approved articles" as well as "updating the OJS software, and training the team" (CASARIN, 2020).

In 2020, it started to publish only scientific articles that are related to one of the four thematic lines: Teacher Formation Processes The Processes of Teacher Formation, Teaching Processes and Resources for Teaching, Educational Products and Methodologies for its Elaboration their Elaboration Methodologies and Development of the area's science education Science Development in the Educational Field, aiming at

focusing on the publication and dissemination of original works that contribute to the development of science in the Teaching area.

It is noteworthy important to highlight some journal's improvements such as that the promotion encouragement of the editorial team training and professionalization of the editorial team, the expansion of transparency, the promotion of the quality of published content and searches for alternatives to expand the visualization and impact of the publication, through indexing, the journal inclusion, are also part of these changes. of the journal in different databases and repositories, citations and indexes.

Educitec is currently included in the following indexing bases: MIAR, AMELICA, LATINREV - Red Latinoamericana de Revistas Academicas en Ciencias Sociales y Humanidades, DOAJ - Directory of Open Access Journals, PKP, Resumos.org, REDIB - Red Iberoamericana de Innovación y Conocimiento Científico, Europub, Sherpa Romeo, Diadorim, Mir@bel, 1findr, Isidore, BBE - Brazilian Bibliography on Education, Latindex - Scientific Journals of Latin America, the Caribbean, Spain and Portugal, ErihPlus - European Reference Index for the Humanities and Social Sciences, Capes Journal Portal, CNEN (LivRe), WorldCat, Index Copernicus, ResearchBib - Academic Resource Index, BASE - Bielefeld Academic Search Engine, Cite Factor, ISI - International Scientific Indexing, IIFS - International Impact Factor Services, ESI - Eurasian Scientific Journal Index, Google Scholar, KnowMetrics.

Theoretical foundations

The advancement of technology, cultural changes, social relations and, especially, movements in favor of Open Science, have influenced the discussion, reflection and changes in the forms of production, dissemination and use of scientific knowledge. This new way of doing science includes, among other features, the evolution of preprint repositories, as well as their use and wide dissemination, open peer review and open access availability of data.

This movement has brought about a new restructuring of the flow of scientific communication and potentializes the adoption of new practices in different journals. According to Soares et al. (2016, p. 176), "[...] in the last decade the world of scientific and technological research has undergone substantial changes, which have required the adoption of new intervention instruments and, as a result, the most accurate and coordination of information".

Therefore, there is a new *modus operandi* of disseminating scientific knowledge, which is more collaborative, transparent, fast and sustainable, due to the potential open access, new formats for storage, use, reuse and retrieval of scientific data. For Rego Piva (2020, p. 97), the advancement of technology is

> one of the most impacting factors in this reordering of the production and distribution processes of these contents, impacting scientific journals, which traditionally occupy a prominent position when thinking about scientific research due to the agility in the availability of research results and data transmitted in their published volumes and numbers, peer-reviewed knowledge and unprecedented scientific content. Thus, such vehicles, which previously appeared only in analog and printed format, are now becoming more and more popular in digital format, with open access, reaching a greater number of people in less time. (REGO PIVA, 2020, p. 97)

In the same direction as Rego Piva (2020), Suaiden (2013, p. 28) points out that the advent of globalization and the technological revolution were responsible for the "[…] great impacts on the dissemination of information and the production of knowledge" and among new practices, electronic production gained greater space, allowing the demonstration "[..] concretely of the growing process of specialization and the repercussions of scientific advances on the forms of knowledge production" (BUFERM; GARCIA, 2013, p. 21).

> Nowadays, the understanding and analysis of this new reality, its dynamics, and complexity, requires the production of more robust indicators, which allow, on the one hand, the apprehension and interpretation of new forms of production, dissemination and transfer of scientific knowledge and, on the other hand, the detailed characterization of national capacities in C&T in the current world scenario of scientific and technological development (SOARES *et al.*, 2016, p. 176).

Given the relevance of these indicators for the analysis of Brazilian scientific production, justifies intensifying studies that can contribute to the observation of the state of scientific production registered in a specific area of knowledge. In this sense, the role of bibliometrics stands out, as "[...] an informational methodological treatment of the production of knowledge in different areas" (SANTOS; CAVALCANTE, 2018, p. 93), and which can "[…] help in identifying trends in knowledge growth in a given discipline, dispersion and obsolescence of more productive scientific fields, authors and institutions [...]" (SOARES *et al.,* 2016, p. 177).

According to Castillo and Carretón (2010, p. 293),

> […] bibliometric studies allow us to know the scopes in which the themes of a scientific field are developed, to know research trends, to identify the research groups (researchers) that are working, to verify the degree of international interconnections between investigations, the relationship between gender, among researchers, citation systems for other publications, self-citations of publications, researchers' self-citations, the research centers in which they are carried out (educational, professional, investigative). In other words, a whole set of parameters that allow establishing an overview of the study of research in a specific field.

Such indicators can contribute to the development of policies and strategies that focus on overcoming the journal's shortcomings and limitations, understanding the specifics of the editorial process, and advancing the discussion on topics related to the field of Education, through measurement between researchers and the journal.

Method

This study is classified as exploratory research, with a quantitative nature. The methodological procedures involve the identification and mapping of articles published in the journal Educitec, from 2015 to 2021, and bibliometric analysis.

The study seeks to analyze the scientific activity, production and dissemination of knowledge in the field of Education, based on a bibliometric analysis "which makes

use of mathematical methods and statistical analysis that allow us to obtain reliable indicators associated with quality" (GÓNGORA, 2010, p. 121), being possible to obtain information on the number of documents published taking into account different criteria.

The *corpus* is composed of 323 works, excluding reviews, as they are not considered as original content. It is noteworthy worth mentioning that this amount is sufficient for analyzing the variables presented, as it represents the totality of articles published in Educitec since its creation since the journal's foundation.

Data collection was carried out by counting and organizing information extracted from published works. The operationality of the analysis involves bibliometric input, based on the following criteria: literature retrieval and filtering, with the review of titles and abstracts, organization of a content matrix and keyword review, and basic statistical analysis.

This process involves analyzing the titles, abstracts, keywords and content of the full text, whenever necessary, based on the theoretical-methodological guidelines of López, Vázquez and Sarasola (2015), Vázquez-Cano, López-Meneses and Cobos - Sánchiz (2015) and Rodríguez-Miranda and Bolaños Martín (2018).

The information was extracted from Educitec and organized with the help of the Sphinx iQ2 software. The data were transcribed in an analytical form that included: year of publication, article title, research genre (theoretical and empirical), level and modality, main subjects addressed, institutional affiliation, authorship by geographic region and keywords (themes).

Results and discussions

The first dimension refers to the analysis of the annual evolution of scientific production at Educitec. The distribution of the 323 works referring to the time frame performed is shown in Figure 1, with an indication of published and excluded works.

Figure 1 - Number of works published and excluded between 2015 and 2021
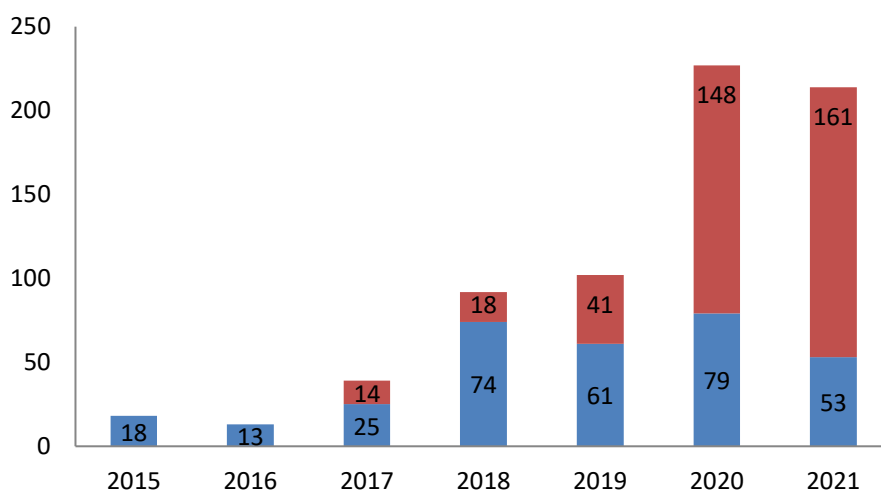
Source: Survey results.

In the evaluated period, the publication ranges from 13 to 79, as shown in Figure 1.The data show growth in terms of the number of articles published since the creation date. In 2021, there was a smaller number of publications compared to the two previous years, considering that there was no publication of a special edition, as, according to the new guidelines, the journal started to adopt the composition of thematic dossiers that are published at the beginning of each year.

The second dimension portrays institutional affiliation. For this analysis, only the institutions of the first author were counted (Table 1).

Table 1. Absolute frequency of publications associated with institutions

Institution	Freq.	Institution	Freq.	Institution	Freq.	Institution	Freq.
IFAM	53	UEM	3	UFRN	2	UFRPE	1
UFAM	12	IFRJ	3	UCS	2	IFPE	1
IFRS	10	UFPA	3	IFFluminense	2	UTFPR	1
IFAC	9	IFRN	3	Universidade Nilton Lins	2	IFMA	1
UEA	8	UERR	3	Faculdade Estácio -AM	1	IFSC	1
UFRGS	8	IFCE	3	INPA-AM	1	UniFOA	1
IFSC	8	UFC	3	UFAC	1		
UNOPAR	7	SEDUC-AM	3	UDESC	1	UFBA	1
IFC	6	CEFET-MG	3	UNIFESP	1	UNAMA	1
IF Sudeste de Minas	6	IFFarroupilha	2	UNIFESSPA	1	UEG	1
UNIVATES	5	UFF	2	UFRR	1	UFCG	1
IFBA	5	UFS	2	UERJ	1	URI	1
UFFS	5	CPS	2	UFMT	1	Universidade Rovuma - Moçambique	1
IFPA	5	UNIFOR	2	IFMT	1	UNINOVE	1
SEMED -AM	4	UTFPR	2	UFT	1	UFG	1
UFOPA	4	CPS	2	IFRR	1	Universidade de Colima/México	1
UFSM	4	IFG	2	UNINTER	1	USCS	1
IFMS	4	UFMS	2	ULBRA	1	UERGS	1
UNESP	4	UEPA	2	UEPB	1	UENP	1
UFSCAR	4	UNIR	2	FMU -SP	1	Unioeste	1
IFSP	4	UFERSA	2	UEFS	1	UNEB	1
UNIPAMPA	4	UnB	2	UESC	1	UNESPAR	1
IFTO	4	UFPel	2	UNEMAT	1	UNICSUL	1
IFES	4	UNIFEI	2	SEDUC- PA	1	Rede Imperatriz Maranhão	1
IF Sul-rio-grandense	3	IFPR	2	IF Goiano	1	Centro Estadual de Educação Profissional em Saúde e Gestão	1
UPF	3	IFRO	2	IFSULDEMINAS	1	EEEP Joaquim	1

|						Moreira de Sousa -CE	
IFMG	3	UFOP	2	USP	1	CEMEAM	1
UFES	3	IFPI	2	UFPE	1	Museu Paraense Emílio Goeldi	1

Source: Survey results.

The institutional origin of the authorships reveals a predominance of Brazilian institutions in the northern region, especially Amazonas, in which the Federal Institute of Amazonas (IFAM) represents the institution with the highest frequency of publication.

Such data demonstrate the need to continue maximize strategies to increase the rate of exogeny, considering that an endogenous journal can negatively contribute to its evaluation and possible indexing in certain databases, as is the case of Scielo, for example.

Despite the current changes in the evaluation of the periods, linked by the Area Committees of CAPES, based on the analysis of the impact factors and internationalization of scientific journals, the relevance of the publication of authors, whose affiliations belong to different institutions and regions, is highlighted. both in the Brazilian and international scenario, aiming at the impact of content, quality and relevance.

The data also demonstrate a diversity of institutions associated with the publications. In order to evidence these data in another format, the indicative per region is taken as an analysis variable. This distribution can be seen in Figure 2.

Figure 2 - Works distributed according to the five demographic regions of Brazil
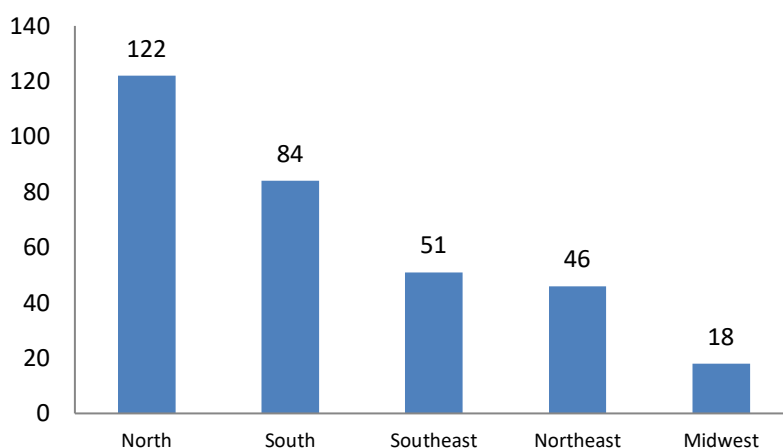
Source: Survey results.

The scientific production published in the journal between 2015 to 2021 came substantially from the northern region. The institutional origin of the authorships continues with a certain predominance of the southern region. The Southeast and

Northeast regions maintain a certain balance and low research publication of research in the Midwest region.

It is worth highlighting two relevant aspects to be considered in the analysis, without the intention of exhausting the possibilities. The first one refers to of them takes into account the fact that the highest rates related to authorship linked to the institution comingcome from the initial years of creation of the journal's foundation, which was is still little publicized disseminated. Another point aspect indicates to be considered refers to the publication of a special edition, in 2020, which aimed to reach teachers, students, graduates and researchers, affiliated with Academic or Professional Masters and Doctoral Courses in the area of Teaching or Education in the North Region , in order to enhance the publication of studies and Perspectives on Education, Teaching and its Technologies in this region.

The illustration presented in Figure 3 identifies the regions and the number of works published per year.

Figure 3 – Number of scientific articles published in the Educitec Journal distributed according to region and year
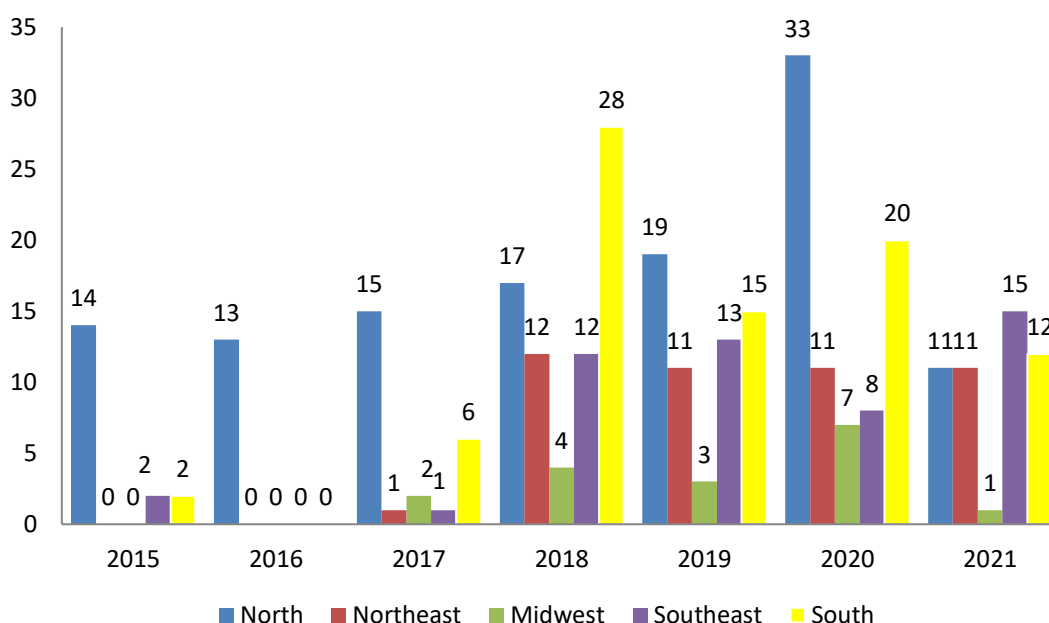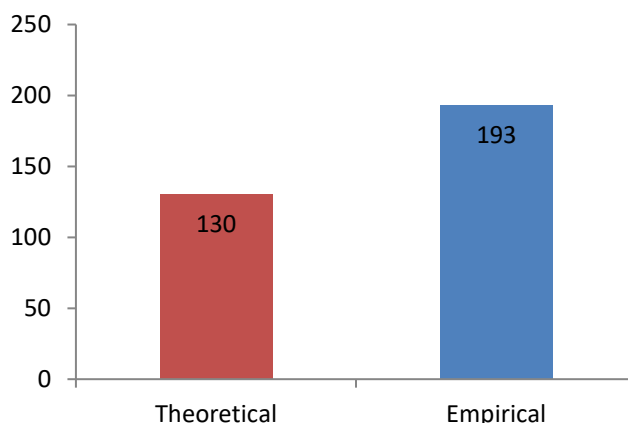

Source: Survey results.

The results demonstrate the editorial concern to reduce the endogeny that is identified especially in the first years of the journal's creation date, aiming to correct certain imbalances and reach the quality standards required by knowledge assessment agencies (PÉREZ-RODRÍGUEZ; GARCÍA-RUIZ; AGUADED, 2018). It highlights the need to expand the number of publications by researchers from other geographic regions and to encourage wide dissemination of the journal internationally, in order to promote the production and publication of other geographic axes and the proportion of foreign authors, seeking a significant increase in international contribution, with publication in Spanish and English.

The next dimension refers to the research genre. For this study, the research was divided into theoretical, "[…] dedicated to reconstructing theory, concepts, ideas,

ideologies, controversies, with a view, in immediate terms, to improve theoretical foundations" and empirical, dedicated to the treatment of the "[…] empirical and factual face of reality; it produces and analyzes data, always proceeding through empirical and factual control" (DEMO, 2000, p. 20-21).

The data in Figure 4 demonstrate that the authors concentrate their interests on empirical and theoretical studies, focusing on aspects related to the educational field.

Figure 4. Categorization of research genre

Source: Survey results.

Considering that Educitec has as its scope the Teaching area scope, it was considered significant to analyze other bibliometric indexes that show the main subjects dealt with in the researches, the levels and teaching modalities in which the practices are being implemented.

In general, the results show studies that address teacher education (one of the thematic lines of the journal) and some specific topics related to the field of Education, such as curriculum, dropout, indiscipline, professional performance, work, identity, comprehensive training, among others, in addition to research and productions that deal with the process of teaching and learning certain contents, in a formal or non-formal environment. In Table 2, the main subjects addressed in the research published in Educitec are presented, allowing to delimit the temporal and pedagogical spaces of the investigative trajectories.

Table 2. Categorization and diversity of subjects

Subjects	Frequency	Subjects	Frequency
Mathmatics	22	Microbiology	1
Chemistry	18	Genetics	1
Geography	7	Parasitology	1
Physics	7	Visual communication	1
Languages	5	Zoology	1
Portuguese language	5	Philosophy	1
English language	5	Veterinary Medicine	1
Biology	5	Medicine (nuclear medicine)	1
Civil Engineering	5	Radiology	1
Computer science	4	Anatomy	1

Spanish language	3	Fisheries Resources and Fisheries Engineering	1
Information Science	3	Physiotherapy	1
Brazilian literature	2	Biophysics	1
Production engineering	2	Astronomy	1
Physical Education	2	Mechanical Engineering	1
Nursing	2	Electrical engineering	1
Administration	1	Civil Engineering	1
Architecture and urbanism	1	Art	1

Source: Survey results.

The data highlight a wide range of sub-areas and subjects covered in research published in Educitec. Among the results, Mathematics and Chemistry have the highest rate of publication. The data also reveals a trend, from 2021, with the submission of articles related to the Health area, focusing on the process of teaching, learning and developing educational products (Veterinary Medicine, Nuclear Medicine, Physiotherapy, Nursing, Anatomy, etc.).

It is also worth mentioning that sixty (60) works refer to studies and evaluations of technological and audiovisual resources in the context of teaching-learning, games, software, virtual learning environments, etc.

The third dimension highlights the levels that include basic education (early childhood education, elementary education and high school) and higher education (undergraduate, postgraduate and extension courses) and the types of teaching (Special Needs Education, Professional Education and Technology, Youth and Adult Education, Indigenous Education and Distance Education).

Table 3. Teaching levels and modalities

| Teaching levels and modalities	Frequency
Professional and Technological Education	73
Uncategorized	70
High school	46
University Undergraduate	52
Elementary School	35
Extension	11
Distance eEducation	10
Youth and Adult Education	9
Special Needs eEducation	7
Postgraduate studies Graduate	7
Indigenous Education	2
Child education Early Childhood Education	1

Source: Survey results.

Continuing In continuation, and considering it is considered that "publication keywords have been widely utilized used to reveal the knowledge structure of research domains" (CHEN; XIAO, 2016, p.212), the next dimension analyzes the keywords, in order to identify the thematic spectrum of the journal, both in terms of the most recurrent subjects and the extension of the thematic domain covered, evaluated through a metric analysis, based on the frequency of terms.

In order to recognize the most published themes, between 2015 and 2021, in the Educitec Journal, a retrospective descriptive study of this set of words was carried out,

with the help of the Sphinx iQ2 Software. In Figure 5, the most recurrent keywords are highlighted.

Figure 5- Keywords - indicative of recurrence
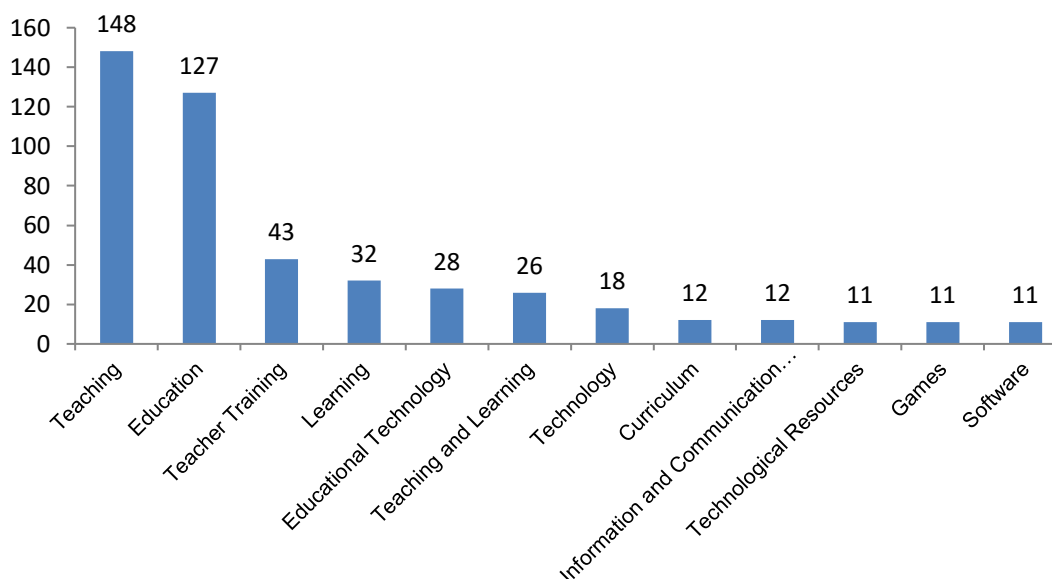
Regarding the thematic aspect, the analysis of the keywords revealed the preponderance of two main thematic nuclei: Teaching and Education, demonstrating a direct incidence of these two areas of Knowledge.

The thematic category "Education" includes keywords such as: Technological education, Distance learning, Elementary education, Hybrid education, Non-formal education, High school, Vocational education, Technological education, Technical education, Higher education, Remote education, teaching mathematics (Biology, Art, Science, Physics, Geography, Geometry, History, Law, Economics, Portuguese, Languages, Chemistry, etc.). It is also worth mentioning the incidence of the terms teaching and learning (with 26 records) and learning (with 32 records).

On the other hand, in the frequency count of the "Education" category, terms such as: Professional education, Integrated professional education, Distance Education, Mathematics education, Higher education, Environmental education, Technological education, Basic education, Inclusive education, Special Needs education, between among others.

The results demonstrate, in relation to the editorial profile, the necessary coherence between the scope of the journal and the themes, with the publication of articles that match its area of expertise, especially related to teaching, learning, Educational Technology, Information and Communication Technologies , Technological resources, teacher training, among other topics.

Through these keywords, it is also possible to identify the trends and behavior of the works being published in the magazine that can serve as indicators for decision-making, especially regarding the offer of future dossiers, taking into account the main areas of interest , or even the least published thematic areas, seeking a balance between the different areas. Furthermore:

> Knowing which themes are in evidence, in a given area and during a given period, are some of the sought-after indicators that allow for the characterization and highlighting of matters of interest. Research and science emerge and represent historical moments in the development of each area, and they develop and confirm with their evolution. Knowing what is being studied and what is being researched and written are matters of interest to all those interested in the sector (COSTA, 2021, p. 19).

It is also worth noting that some results show some inconsistency in the keywords that are presented in a very comprehensive way, in relation to the controlled vocabulary (Thesaurus Brazilian of Education). This finding demonstrates the relevance of the use of controlled vocabulary in the field of Teaching and Education, consisting of a list of standardized terms that represent concepts from different fields of knowledge and aim to assist in the processing of informational documents, enabling more accurate data retrieval and researched subjects, and expand the objectivity and efficiency of scientific communication between the system used and the journal's final reader.

Conclusion

In this research, scientific production data from works published in Educitec, from 2015 to 2021 were used. Through the use of bibliometric analysis techniques, it was possible to identify indicators related to the mapping of the annual evolution of scientific production, the institutional link of the authors, the type of research adopted, the distribution by geographic region of the productions, the main subjects that are addressed in the investigations and the predominant themes.

Based on these indicators, it was possible to analyze the characteristics of scientific publication and project future improvements, encourage possible adjustments to the results and reflect on the need for strategies to expand the publication and marketing of the journal.

In this sense, the analysis of scientific production data from the Educitec Journal can contribute to the evaluation and re-elaboration of editorial policies and guidelines, adoption of new strategies that can overcome the limitations found and enhance the journal's qualities, as well as, understand more objective, the specifics of the editorial process, in the scientific and technological scope.

From an editorial perspective, the results contribute in different aspects:

> i) the indexes related to scientific production related to institutions demonstrate the need to continue promoting the journal's rate of exogeny;

> ii) the data related to the frequency of the keywords show the most published themes in Educitec and with such data new dossiers can be proposed, taking into account the main areas of interest, or even the least published thematic areas, seeking a balance between the different areas;

> iii) the indicators related to the geographic region point to the need to promote new marketing and dissemination strategies for the journal in the Midwest, Southeast and Northeast regions, aiming at broadening the visualization and reach and favoring the dissemination of knowledge;

> iv) the results can provide an overview of the main research trends published in Educitec, helping researchers to identify research gaps and proposals for future

submissions, aiming at the publication of emerging themes that constitute the research scenario in the field of Teaching.

These aspects are relevant in the editorial dimension, as they support the development of new editorial policies and the adoption of strategies, based on the diagnosis made of the evolution of scientific production in the journal. Thus, the results aim to help structure the editorial development plan, optimize self-assessment and identify possible strengths, weaknesses, required innovations and criteria that should be reassessed.

These indicators allow prospecting for an objective and dynamic editorial management, supporting decision-making, as well as evaluating the journal's degree of capillarity in its area of expertise. Can be used to consolidate changes that allow the scientific strengthening of the journal, expansion of quality criteria, the search for improvement of its classification in Qualis and the challenges related to constant updates in scientific communication, especially concerning to the Open Science movement.

In this context, it is possible to carry out some reflections, such as the importance of measuring the impact of the dissemination of published research results, their contributions to the advancement of knowledge and the need for new editorial practices and policies that can enhance access and reuse of research data in the field of Education, especially those that contribute to the development of new educational products.

This data may involve the design, development and validation of educational products, including methods and methodologies employed in construction and validation testing. Open access and sharing of these data, with potential for reuse for other research, demonstrate the transparency of the processes of collection, treatment and analysis, reproducibility, sustainability and collaboration between researchers, fundamental aspects for innovation and scientific and technological advancement in the field of Teaching.

Future studies can map new variables, such as research methodologies and methods used by researchers, data collection techniques constantly used, the density of the authorship and co-authorship network, identification of the main contributions and limitations pointed out by researchers within the scope of teaching. These aspects can generate new investigations, in view of the gaps found, common problems and research trends, aiming at tangible improvements in the processes of teaching, learning and teacher education.

References

BUFREM, L. S.; GARCIA, T. M. F. B. A Editora Universitária diante dos desafios e tensões da Institucionalização de suas práticas. **Verbo**, 2013, p.20-23. Disponível em: https://arquivosbrasil.blob.core.windows.net/insulas/anexos/revistaverbo2013_9-38443.pdf. Acesso em: 14 set. 2021.

CASARIN, H. C. S. Editorial. **Brazilian Journal of Information Science**: research trends, v. 14 n. 4, 2020. Disponível em: https://revistas.marilia.unesp.br/index.php/bjis/article/view/10979/6780. Acesso em: 14 set. 2021.

CASTILLO, A., CARRETÓN, C. Investigación en comunicación: Estudio bibliométrico de las revistas de comunicación en España. **Comunicación y sociedad,** 23(2), 2010, p. 289-327. Disponível em: http://hdl.handle.net/10045/22678. Acesso em: 14 set. 2021.

BRAJIS. Sobre a Revista. 2020. Disponível em http://www2.marilia.unesp.br/revistas/index.php/bjis/about. Acesso em: 14 set. 2021.

CHEN, G; XIAO, L. Selecting publication keywords for domain analysis in bibliometrics: A comparison of three methods. **Journal of Informetrics**. 10, 1 , 2016, p. 212-223.

COSTA, A. L. F.; YAMAMOTO, O. H. Publicação e avaliação de periódicos científicos: paradoxos da avaliação qualis de psicologia. **Psicologia em Estudo**, Maringá, v. 13, n. 1, 2008, p. 13-24. Disponível em: https://www.scielo.br/j/pe/a/4mgg5KVzLwMsrGrtwqbgyMw/abstract/?lang=pt. Acesso em: 1 set. 2021.

COSTA, F. C. F. Estudo bibliométrico da produção científica publicada em periódicos da área de moda em 2017 e 2018. **Informação em Pauta**, Fortaleza, v. 6, p. 1-27, 2021. Disponível em: http://www.periodicos.ufc.br/informacaoempauta/article/view/44585/197225. Acesso em: 20 out. 2021.

DEMO, P. **Metodologia do conhecimento científico**. São Paulo: Atlas, 2000.

GÓNGORA, A. La Importancia de los estudios bibliométricos. El caso de Orinoquia. **Redalyc,** 14(2), 2010, p. 121-122. Disponível em: http://www.scielo.org.co/pdf/rori/v14n2/v14n2a01.pdf. Acesso em: 4 set. 2021.

LÓPEZ, E., VÁZQUEZ, E., SARASOLA, J. L.. Estudio bibliométrico de Pixel-bit, revista de medios y educación (2000-2013). **Pixel-Bit. Revista de Medios y Educación,** (46), 2015, p. 65-85. Disponível em: https://recyt.fecyt.es/index.php/pixel/article/view/61611/37624. Acesso em: 14 set. 2021.

PÉREZ-RODRÍGUEZ, M. A., GARCÍA-RUIZ, R.; AGUADED, I. Comunicar: calidad,visibilización e impacto. **Revista Española de   Pedagogía**,   76 (271), 2018, p.   481-498. Disponível em: https://revistadepedagogia.org/wp-content/uploads/2018/09/Comunicar.pdf. Acesso em: 1 jun. 2021.

REGO PIVA, L. M. **O periódico científico como forma de representação de domínio em Ciência da Informação**: uma análise da revista BRAJIS (2006-2019). 2020. 571 p. Tese. (Doutorado em Ciência da Informação) Faculdade de Filosofia e Ciências, Universidade Estadual Paulista (Unesp), Marília, SP. Disponível em: https://repositorio.unesp.br/handle/11449/202683. Acesso em: 4 set. 2021.

RODRÍGUEZ-MIRANDA, F. P.; BOLAÑOS MARTÍN, L. Dieciséis años de RELATEC. Estudio bibliométrico de la Revista Latinoamericana de Tecnología

Educativa. **Revista Latinoamericana de Tecnología Educativa**, 17(2), 2018, p. 57-71. Disponível em: https://relatec.unex.es/article/view/3320. Acesso em: 14 set. 2021.

SANTOS, J. B.; CAVALCANTE, M. A. H. Análise bibliométrica da Revista Controle – doutrina e artigos: período 2005 a 2016. **Informação em Pauta**, Fortaleza, CE, v. 3, n. 2, 2018, p. 73-98. Disponível em: http://www.periodicos.ufc.br/informacaoempauta/article/view/33227/pdf. Acesso em: 1 set. 2021.

SOARES, P. B.; CARNEIRO, T. C. J.; CALMON, J. L.; CASTRO, L. O. C. O. Análise bibliométrica da produção científica brasileira sobre Tecnologia de Construção e Edificações na base de dados Web of Science. **Ambiente Construído,** Porto Alegre,v. 16, n. 1, 2016, p. 175-185. Disponível em: https://www.scielo.br/j/ac/a/7CmZ3n8FT8R5g93DkW5kzMJ/?format=pdf&lang=pt. Acesso em: 4 set. 2021.

SUAIDEN, E. Desafios da disseminação da informação e do conhecimento na era digital e do acesso aberto. **Verbo**, 2013, p. 28-33. Disponível em: https://arquivosbrasil.blob.core.windows.net/insulas/anexos/revistaverbo2013_9-38443.pdf. Acesso em: 14 set. 2021.

SU, H.; LEE, P. Mapping Knowledge Structure by Keyword Co-Occurrence: a first look at journal papers in technology foresight. **Scientometrics,** v. 85, n. 1, 2010, p.65-79.

VÁZQUEZ-CANO, E.; LÓPEZ-MENESES, E.; COBOS-SÁNCHIZ, D. Estudio Bibliométrico de Profesorado. Revista de Currículum y formación del profesorado (1997-2013). **Revista de Currículum y formación del profesorado**, 18(3), 2015, p. 191-212.