

Remote teaching in brazilian basic education: A bibliometric review



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ABSTRACT

This study presents a quantitative bibliometric analysis of scientific articles published in high-impact journals, using the metrics of the Web of Science (WoS) database, on the theme of remote teaching in Brazilian basic education. The objective was to identify trends and research gaps in this area. The results indicate that, although there are several scientific publications on the subject, there is a scarcity of more robust studies that can be published in more prestigious journals, such as those included in this research. In addition, the graphs and illustrations generated by VosViewer and MS Excel, based on the data collected in the WoS database, revealed that there are few research clusters on the subject in Brazil, with little interaction between them, although they share similar theoretical foundations. Finally, research possibilities were identified based on the gaps identified through the bibliometric analysis of the articles.

Keywords: Remote teaching, Basic education, Bibliometric analysis, Bibliometrics.

1 INTRODUCTION

Although often treated as synonyms, Distance Education (EAD) and Remote Learning have different conceptions. Distance education is a consolidated and expanding teaching modality in Brazil, whose effectiveness has been proven through several scientific studies. In this modality, teachers and students may be geographically separated, but are connected through Information and Communications Technology (ICTs). In addition, distance education stands out for the active role of the student in the teaching-learning process, thanks to the active methodologies adopted.

On the other hand, Remote Teaching consists of synchronous classroom classes, following the principles of traditional teaching. In this context, the student is a spectator who absorbs the teacher's content passively, with little interaction between the two. While distance learning is a permanent teaching modality, Remote Learning is a temporary solution, adopted in crisis situations when face-to-face classes are not feasible, as occurred during the period of social isolation imposed by the COVID-19 pandemic.



During the pandemic, Remote Learning was the emergency alternative found to maintain Basic Education activities in Brazil. However, due to its hasty implementation, several barriers were faced in the school environment between the years 2020 and 2022. Therefore, understanding the functioning, implications and challenges of remote teaching in Brazilian Basic Education becomes a relevant issue.

In view of the above, this paper presents a bibliometric analysis of scientific articles published between 2013 and 2023, which address the theme of 'Remote Teaching in Brazilian Basic Education'. The goal is to analyze trends and identify research gaps in this field of study. For this, the study is structured in four sections: introduction, contextualizing and highlighting the importance of the research; theoretical framework, which discusses the limits and trends of remote teaching and the use of ICTs in face-to-face teaching; methodology, which describes the approach adopted in the research; results and discussion, which reflect on the relationships between the concepts addressed; and final considerations.

2 THEORETICAL FRAMEWORK

The period between 2020 and 2021 was marked by the occurrence of the COVID-19 pandemic, which resulted in a significant number of deaths in Brazil, estimated at more than 700,000 lives lost (BRASIL, 2023). In order to contain the increase in contamination and avoid overloading the Unified Health System, the country's health authorities have implemented social isolation measures, known as lockdown. As a result, schools were prevented from holding in-person activities. In 2020, to enable the continuity of the school year, the National Education Council (CNE), linked to the Ministry of Education (MEC), authorized the transition to Emergency Remote Teaching (ERE), recommending the return to face-to-face classes at the end of the second semester of 2021 (BRASIL, 2021).

Given this, public and private educational institutions needed to adapt their classes to the remote teaching format, facing several challenges throughout this process. According to De Oliveira Lima and Nasser (2020), some of the obstacles faced included poor access to Information and Communication Technologies (ICTs), both by students and by institutions and teachers; the lack of motivation of the students; the difficulties of adaptation of students and teachers to the new educational reality, among others. Similarly, Macedo (2020) notes that the negative impacts of remote learning on basic education were largely derived from digital inequality, especially among public school students.

On the other hand, Alves et al. (2021, p.61) argue that, although the pandemic scenario is temporary, the use of technologies by teachers and students tends to continue, promoting greater interconnection and integration with the reality that surrounds them. Therefore, understanding the limits and possibilities of this approach becomes fundamental for the future of teaching practices.



3 METHODOLOGICAL PATH

The present study adopts a methodological approach based on quantitative bibliometric analysis to evaluate the trends and perspectives of scientific productions on remote teaching in the context of Brazilian basic education. This approach follows the methodological proposal presented by Jia, Dai and Guo (2014). To perform this analysis, a search was performed in scientific articles indexed in the *Web of Science* (WoS) database, using the following search criteria: $TS = (("remote" OR "hybrid") AND ("education" OR "teaching" OR "*learning")) AND (("basic" OR "primary" OR "elementary") AND ("education" OR "school")) OR ("school*" AND ("middle" OR "high")) AND "Brazil"$. The choice of this database was motivated by its high standard of selection for the inclusion of journals, as well as by being widely recognized and used by Brazilian and foreign researchers.

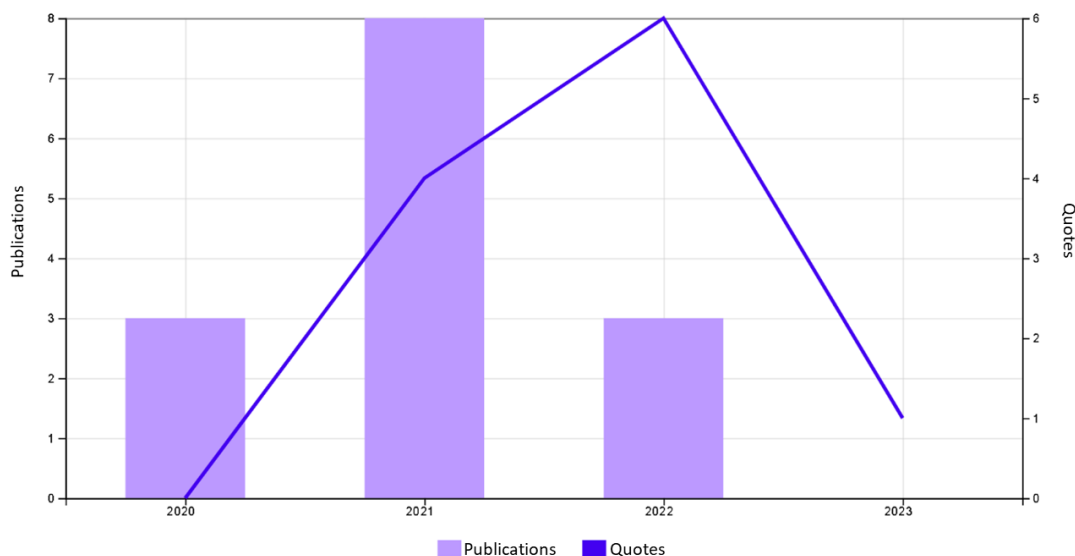
Then, the following filters were applied to the results obtained: type of documents - articles, review articles and early access; year of publication - from 2013 to 2023; type of access - open access; language - Portuguese. After applying these filters, a preliminary reading of the titles, abstracts and keywords of each selected article was performed in order to verify their relevance to the scope of the research in question. Finally, the results obtained from the research in the WoS database, which are listed in the annex of this work, were exported to the VosViewer *and* MS Excel applications, in which graphs and maps were generated using impact metrics.

4 RESULTS AND DISCUSSION

The mining of articles in the WoS database, using the criteria mentioned in the previous section, resulted in a total of 14 papers published in the period from 2020 to 2022, which constituted the corpus of this bibliometric study (Figure 1). It was observed that no papers published before the pandemic period were found and that the year 2021, which corresponds to the peak of the pandemic, concentrated the largest number of publications. This fact indicates that there has been a significant increase in interest in conducting research on remote teaching in the context of Brazilian basic education, driven by the implementation of Emergency Remote Teaching (ERE) due to the Covid-19 pandemic.



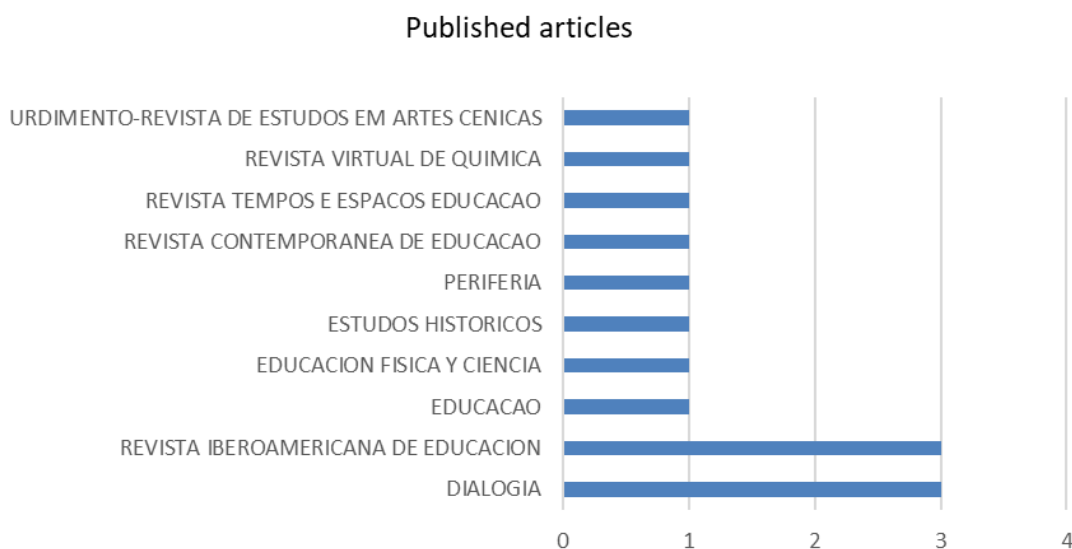
Figure 1: Chart of Publications and Citations by Year (2020 to 2023)



Source: Prepared by the author, research data in the WoS database (2023)

Regarding the distribution of articles, it was found that they were published in ten different journals, and the Dialogia Journal (e-ISSN 1983-9294) and the Iberoamerican Journal of Education (e-ISSN 1681-5653) had the largest number of publications, with three papers each (Figure 2). This indicator points to the interest of the journals that publish the most on the subject.

Figure 2: Graph of articles published by journal (2020 to 2023)



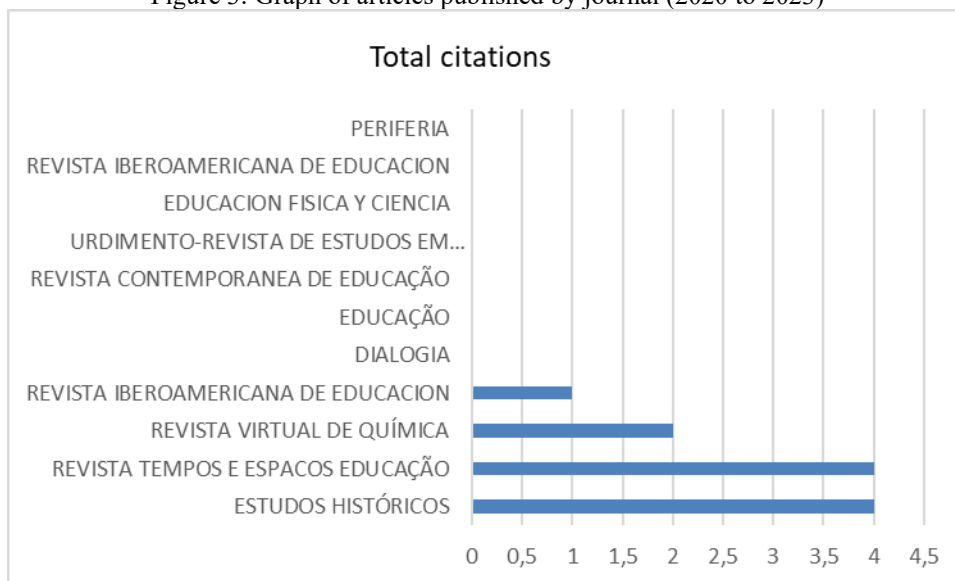
Source: Prepared by the author, research data in the WoS database (2023)

However, it is important to note that, despite having fewer publications on the subject, the articles published in the Revista Tempos e Espaços Educação (e-ISSN 2358-1425) and in the Revista Estudos Históricos (e-ISSN 2178-1494) received a higher number of citations. This fact indicates a significant recognition by the scientific community in relation to these journals, highlighting their



relevance and impact in the field of studies on remote teaching in the context of Brazilian basic education.

Figure 3: Graph of articles published by journal (2020 to 2023)



Source: Prepared by the author, research data in the WoS database (2023)

Regarding the evaluation of journals by the Coordination for the Improvement of Higher Education Personnel (CAPES), it was found that only two journals are classified in stratum B2, while the others have higher concepts and are classified in stratum A* (Table 1). This indicates that most of these journals have a high impact factor and are recognized as a reference in their respective research areas.

Table 1: CAPES Qualis Stratum of research journals (2017/2020)

PERIODIC	ISSN E-ISSN	QUALIS CAPES (2017 – 2020)
Historical Studies	2178-1494	A1
Warp-Journal of Studies in the Performing Arts	2358-6958	A1
Ibero-American Journal of Education	1681-5653	A2
Education	1984-6444	A2
Magazine Times and Spaces Education	2358-1425	A3
Dialogue	1983-9294	A4
Outskirts	1984-9540	A4
Rev Contemp Educ	1809-5747	A4
Virtual Journal of Chemistry	1984-6835	B2
Physical Education and Science	2314-2561	B2

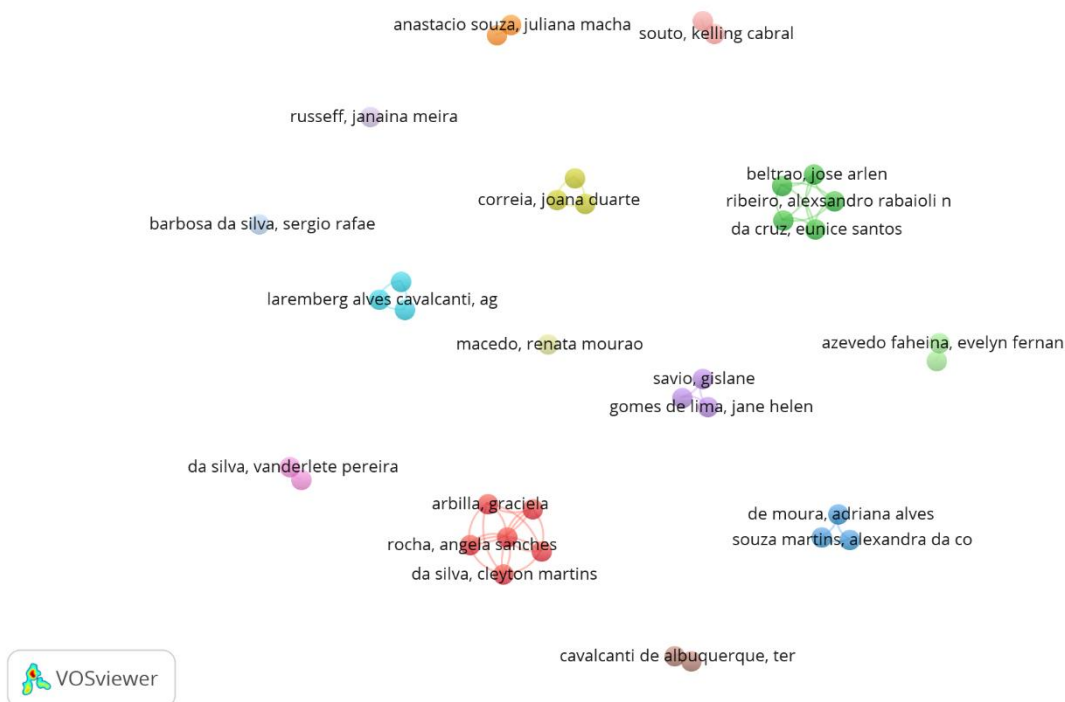
Source: Prepared by the author, research data in the WoS database (2023)

The co-authorship map (Figure 4) was generated considering the minimum inclusion of one article per author, revealing the existence of fourteen well-defined and sectorized research clusters. Although these clusters act independently, it is possible to identify that they share similar reference sources, as evidenced by the co-citation map. The latter was generated from references that were cited



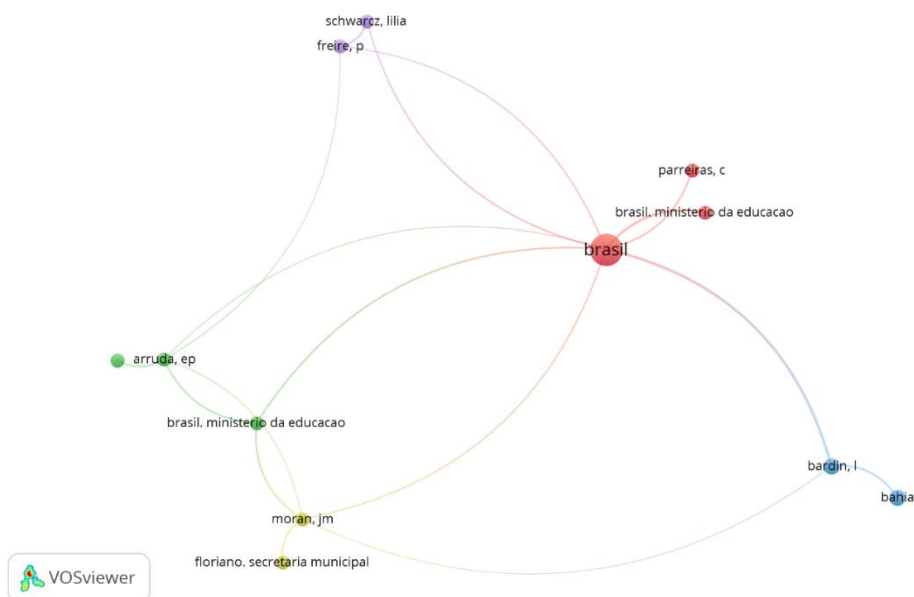
at least four times by the articles that make up the research corpus (Figure 5). These results indicate that, although the research areas are distinct, there is a substrate of knowledge shared among the different clusters.

Figure 4: Bibliographic coupling map



Source: Prepared by the author, research data in the WoS database (2023)

Figure 5: Author co-citation map



Source: Prepared by the author, research data in the WoS database (2023)



In fact, although all the articles address remote teaching in the context of Brazilian basic education, each of them adopts a different perspective. While some focus on the perception of teachers, others seek to understand the phenomenon from the perspective of students. In addition, there are articles that are dedicated to explaining or finding ways to make more effective the management decisions involved in the remote learning process. This variety of approaches contributes to a more comprehensive and in-depth understanding of the topic, considering multiple aspects and actors involved in the educational context.

5 FINAL CONSIDERATIONS

In conclusion, it is evident that there is a need to expand the amount of research on remote teaching in the context of Brazilian basic education, especially in high-impact journals, such as those indexed in the WoS database. This finding is based on the importance of the use of Information and Communication Technologies (ICTs) in the teaching-learning process, which is not limited only to periods of health crisis.

In this way, there are several contexts that can be explored and investigated more deeply. For example, it is possible to analyze regions that have had a more successful experience with Emergency Remote Teaching (ERE), identify the specific barriers faced in remote teaching in public and private institutions, examine the perception of teaching quality by students and teachers, evaluate learning in different contexts of remote and face-to-face teaching, among other research possibilities.

The expansion of this field of study will provide a more comprehensive understanding of the challenges, opportunities and best practices related to remote teaching, contributing to the improvement of educational policies and to the improvement of the quality of basic education in Brazil.



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ATTACHMENT

Table 1. Corpus of bibliometric research

14 Publications	Quotes						
						Average per year	Total
	2019	2020	2021	2022	2023		
Total	0	0	4	6	1	3.67	11
1 Right or privilege? Digital inequalities, the pandemic, and the challenges of a public school Macedo, RM May-aug 2021 HISTORICAL STUDIES 34 (73) , pp.262-280	0	0	0	3	1	1.33	4
2 EMERGENCY REMOTE EDUCATION IN BRAZILIAN AND PORTUGUESE SECONDARY EDUCATION: TEACHERS' PERSPECTIVE Days-Trinity, S; Belt, JD and Henriques, S 2020 MAGAZINE TIMES AND SPACES EDUCATION 13 (32)	0	0	4	0	0	1	4
3 Evaluation of Pedagogical Strategies used in the State of Rio de Janeiro for Teaching Chemistry, Physics and Biology in High School During the First Year of the COVID-19 Pandemic Smith, R; de Mello, MCS; (...); Arbilla, G Nov-dec 2021 VIRTUAL JOURNAL OF CHEMISTRY 13 (6) , pp.1404-1413	0	0	0	2	0	0.67	2
4 Challenges and learning from remote teaching by basic education teachers Alves, LAD; Martins, ADS and de Moura, AA May-aug 2021 REVISTA IBEROAMERICANA DE EDUCACION 86 (1) , pp.61-78	0	0	0	1	0	0.33	1
5 Education in Covid-19 times and the emergencial remote teaching: what do teachers of Escola Municipal Jose Ribeiro Bessa say? Faheina, EFA and da Silva, ACV Jan-Apr 2022 DIALOGUES (40)	0	0	0	0	0	0	0
6 "God bless our Brazil" - Recommendations for the comeback of the return of presential classes to the	0	0	0	0	0	0	0



<p>children: the transition from biopolitics to necropolitics Ratusniak, C and da Silva, VP 2022 EDUCATION 47</p>							
<p>7 Remote teaching experienced by gifted students from Rio de Janeiro Souto, KC and Delou, CMC Jan-Mar 2022 CONTEMPORARY JOURNAL OF EDUCATION 17 (38) , pp.40-63</p>	0	0	0	0	0	0	0
<p>8 What happened? An artistic-pedagogical inventory of drama teaching in Rio de Janeiro in times of pandemic Russeff, JM Dec 2021 WARP-JOURNAL OF STUDIES IN PERFORMING ARTS 3 (42)</p>	0	0	0	0	0	0	0
<p>9 Physical Education School in the Covid-19 Pandemic: Experiences in High School Class in Northeast Brazil Teixeira, DR; dos Santos, VBJJ; (...); Beltrão, JA Oct-dec 2021 PHYSICAL EDUCATION AND SCIENCE 23 (4)</p>	0	0	0	0	0	0	0
<p>10 We are being invaded: discussing scientific concepts related to COVID-19 pandemic through the development of memes Costa, JS and de Albuquerque, TCC Sep-Dec 2021 REVISTA IBEROAMERICANA DE EDUCACION 87 (1) , pp.115-134</p>	0	0	0	0	0	0	0
<p>11 DEPENDENT MODERNIZATION AND THE COVID-19 PANDEMIC: reflections on face-to-face and off-site teaching da Silva, SRB May-aug 2021 SUBURBS 13 (2) , pp.49-69</p>	0	0	0	0	0	0	0
<p>12 Actions implemented in the remote system offered by a school in the municipal education system of Brumadinho/MG to guarantee the continuity of education in response to the pandemic Dutra, GS and Souza, JMA May-aug 2021 REVISTA IBEROAMERICANA DE EDUCACION 86 (2) , pp.95-112</p>	0	0	0	0	0	0	0
<p>13 English as a Lingua Franca (ELF) and the teaching-learning of the English language in a municipal</p>	0	0	0	0	0	0	0



elementary school in pandemic times: a report on English teaching-learning practices de Lima, JHG; Savio, G and Rosso, GPP Sep-Dec 2020 DIALOGUES (36) , pp.269-282							
14 Education in uncertain times: the implementation of remote education in the Municipal Department of Education of the city of Floriano - Piaui Martins, A; Cavalcanti, ALLA and Golden, ACS Sep-Dec 2020 DIALOGUE (36) , pp.73-85	0	0	0	0	0	0	0

Source: Database *Web Of Science* (2023)