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Jacomini, Márcia Aparecida; Wellen, Hericka Karla Alencar de Medeiros;
Perrella, Cileda dos Santos Sant'Anna; Monção, Maria Aparecida Guedes

Pesquisas estado da arte em educação: características e desafios¹

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State of the art research in education: characteristics and challenges¹

Márcia Aparecida Jacomini²

ORCID: 0000-0003-2936-3174

Hericka Karla Alencar de Medeiros Wellen³

ORCID: 0000-0002-4364-1946

Cileda dos Santos Sant'Anna Perrella⁴

ORCID: 0000-0002-0885-3396

Maria Aparecida Guedes Monção⁵

ORCID: 0000-0002-4291-0120

Abstract

In this article, a systematic review study was carried out based on the analysis of 47 productions resulting from state-of-the-art research, selected from a universe of 113 review studies produced in the period from 2000 to 2016: articles published in national journals of the area of education, registered in SciELO; books and the Inep's *Estado do Conhecimento Series*. The objective of the article was to analyze the theoretical-methodological characteristics of the research, identify the challenges to its realization and indicate trends, potentialities and challenges to metaknowledge in the field of education. As a result, it can be stated that there is a common basic repertoire on the methodological design of states of the art shared by researchers, but it is still necessary to advance in establishing criteria that are fundamental to the development of these studies, which can be systematized into four main challenges: greater dialogue with the literature on review studies; creation of networks of researchers; advance in the complete reading of the works or read parts that may bring relevant information about the characteristics of the research, such as introduction, methodology and conclusions; improve and increase research that maps, evaluates and produces syntheses to guide researchers and their commitment to science and social demands.

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2- Universidade Federal de São Paulo. São Paulo, SP, Brazil. Contact: jacominimarcia@gmail.com

3- Universidade Federal do Rio Grande do Norte. Pitimbu, Natal/RN. Brazil. Contact: hkmedeiros78@gmail.com

4- Faculdade Zumbi dos Palmares. Pesquisadora da Rede Escola Pública e Universidade (REPU), São Paulo/São Paulo, Brazil.

Contact: cileda.perrella@gmail.com

5- Universidade Estadual de Campinas, Campinas/SP – Brazil. contact: magedes@unicamp.br



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Keywords

Educational research – State of art – State of knowledge – Methodology.

Introduction

The growing attention to review studies has highlighted the importance and contribution of “research about research” and reinforced its presence in the educational research agenda. However, little is known about how they are carried out, that is, the nature of these studies and the methodological approaches that guide the procedures for collecting information, inclusion criteria, organization and data analysis.

Given the importance of research of this nature for the construction of the area, some researchers have dedicated themselves to investigating its characteristics, especially with regard to typology and methodological development, such as Vosgerau and Romanowski (2014); André, Simões, Carvalho and Brzezinski (1999); Gatti (2012); Davies (2007).

Vosgerau and Romanowski (2014) carried out a survey and analysis of review studies and highlighted that the value of this type of study lies mainly in the methodological rigor with which the researcher develops his work, and not in the discussions of its different nomenclatures. According to the authors,

Review studies consist of organizing, clarifying and summarizing the main existing works, as well as providing full citations covering the spectrum of relevant literature in an area. Literature reviews can present a review to provide a historical overview on a topic or subject considering the publications in a field. Often an analysis of publications can contribute to the historical reformulation of academic dialogue by presenting a new direction, configuration and referrals. (2014, p. 167)⁶.

As part of this movement that has contributed to the systematization of typologies and theoretical-methodological characteristics of review studies, the research that supported the writing of this article analyzed 113 studies in the area of education, produced in the period from 2000 to 2016. To define the research corpus, it was considered important to include articles with wide circulation in the academic area. Therefore, national journals in the area of education registered in Scientific Electronic Library Online (SciELO), books and the Inep's⁷ *Estado do Conhecimento Series of the Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira* were selected, as they present important review studies on various topics, conducted by teams of researchers, which made it possible to collect and analyze a large number of works, safeguarding the specificities of each study. This made it possible to identify review studies in three different media. Regarding the publication of Inep, it should be noted that the researchers were mobilized in partnership with the

6- Free translation.

7- INEP (Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira) is a Brazilian autarchy, linked to the Ministry of Education, which promotes research, studies and evaluations on Brazilian education.

*Associação Nacional de Pós-Graduação e Pesquisa (Anped)*⁸, the *Associação Nacional de Política e Administração da Educação (Anpae)*⁹, the *Fundação Carlos Chagas*¹⁰ and the *Ação Educativa*¹¹ (BARRETO; PINTO, 2001).

As indicated by Vosgerau and Romanowski (2014), the most current classifications of review studies have been ordered into two large groups: studies that map and those that evaluate and synthesize. Studies that evaluate and synthesize, such as systematic review studies, necessarily map production; therefore, the research sought to articulate the universes of mapping, evaluation and synthesis.

The sources analyzed in this article were collected in the first half of 2017, based on their titles, keywords and abstracts. Regarding the books, the search was carried out in the Tesauros database¹², using the following descriptors: “bibliographic survey”, “literature review”, “bibliographic review”, “state of the art”, “state of knowledge”, “narrative review”, “bibliometric study”, “systematic review”, “integrative review”, “synthesis of qualitative evidence”, “qualitative meta-synthesis”, “meta-analysis”, “meta-summarization”, “meta-research”, “review study”, “intellectual production”, “academic production”, “exploratory study”, “scientific production”. As the word education was not added to the descriptors, those related to the area were selected a posteriori from the set of books that emerged from the search. The collection of the *Estado do Conhecimento* Series was conducted directly on the Inep website and included all publications related to the Series. After a preliminary analysis, a total of 113 papers met the inclusion criteria, with 88 articles from 15 magazines, 12 books and 13 texts from the *Estado do Conhecimento* Series. From this universe, 47 productions were self-described state of the art or knowledge, indicating that this is the most common type of review in the area, considering the general research corpus. These being the object of analysis in this article.

In line with the purposes of broader research, in this article, state-of-the-art studies are analyzed with a focus on objectives, on methodological approach, on the dialogue that the authors did with the literature, on the results and on the contributions, seeking to present a overview of how methodological understandings of states of the art have been built, indicate trends, potentialities and challenges for its consolidation and advances in the field of education. To this end, we opted to develop a systematic review study (GOUGH, THOMAS, OLIVER, 2012; DAVIES, 2007; GOUGH, OLIVER, THOMAS, 2014). Considering that the central focus of systematic reviews are the results, and that to analyze them it is necessary to consider the methodological approach and the characteristics of the productions, special attention was paid to the methodological design of the investigated works.

Before the analysis, however, a brief presentation of the theoretical panorama on research that has academic production as its object of study is necessary. In the data analysis, in addition to a general analysis of the production, we sought to indicate central

8- ANPED is a Brazilian non-profit entity that serves stricto sensu graduate programs in education, professors and students linked to these programs and other researchers in the area.

9- ANPAE is an academic civil association in the field of education policy and management, which serves researchers, professors and students of higher education.

10- Fundação Carlos Chagas is a Brazilian non-profit institution that works in the areas of evaluation, selection process, research and education.

11- Ação Educativa is a non-profit Brazilian civil association that operates in the fields of education, culture and youth.

12- http://pergamum.inep.gov.br/pergamum/biblioteca/pesquisa_thesauro.php

aspects that characterize the review studies. Finally, in the final considerations, a reflective synthesis of the research findings, contributions and challenges of research on research in the area of education was carried out.

Educational research and review studies

Brazilian educational research is just over 80 years old. In 2006, Marli André characterized it as a young research tradition and established periods for a better understanding of this tradition: the induced birth, the achievement of majority and the path to maturity. In the first decades of its existence, research in Education went through different moments, but all marked by the fact that the research took place outside Universities, in governmental institutions, hence the expression “induced birth” suggested by the author. Because it appeared to support government programs. Thus, educational research in Brazil “was not born out of a movement by the universities themselves, but it was induced by government bodies within very defined expectations: obtaining subsidies for educational policies”¹³ (ANDRÉ, 2006, p. 14). That is, if research in the field of Education has a short trajectory in our country, this trajectory is even shorter within universities¹⁴.

The first moment of this induced birth occurred when INEP was created, at the end of the 1930s. With the “escolanovista”¹⁵ psychologist Lourenço Filho as its first director, researches until mid-1950s suggested psychological explanations for the pedagogical process and promoted the ideals of the “Escola Nova”, such as, for example, the centrality of the student in teaching-learning process – the “learning how to learn”. From 1956 to 1964, functionalists theories in the social sciences gained prominence and the researches turned to Brazilian regional differences and the training of researchers (ANDRÉ, 2006).

During the period of the civil-military dictatorship, a difference was noticed regarding to the governmental treatment of educational research between the years 1965 to 1970 and the years that followed. At first, research, still strongly linked to the government, had a technical character, of an economic nature, based on the Theory of Human Capital. In the 1970s until the end of the dictatorship, in the so-called “anos de chumbo”¹⁶, there was a disconnection of research in relation to government objectives and the emergence of postgraduate courses in education at universities.

Based on studies by Joly Gouveia (1971), André (2006) indicated the advantages and disadvantages of this research/government separation: the advantage would be a “greater independence of researchers regarding the choice of study themes and methodologies and the disadvantage would be a disconnection between the knowledge produced and the

13- Free translation.

14- In 1971, regarding the weakening of INEP during the “anos de chumbo” of the Brazilian Civil-Military Dictatorship, Joly Gouveia wrote: “The university could be an alternative. In fact, however, no Brazilian university currently has the necessary conditions to carry out research that can offer a relevant contribution to the country’s educational development. We refer to the education sector which, in our opinion, is, naturally, the most suitable for studies of this nature” (GOUVEIA, 1971, p. 19, free translation).

15- “Escolanovista” is a term used to designate researchers, scientists, teachers and intellectuals in general who were signatories of the “Manifesto dos Pioneiros da Escola Nova” in 1932. This manifest began the Escola Nova movement in Brazil and had the American John Dewey as one of the main pillars.

16- “Anos de Chumbo” (from 1968 to 1974): period of greater state repression and violence during the Brazilian dictatorship.

practice”¹⁷. (ANDRÉ, 2006, p. 14). In other words, if, on the one hand, independence is fundamental to the free development of an area, as it results in non-utilitarian research, on the other hand, this displacement and the research carried out at universities may not be connected with the demands of schools and education in the country in general.

Gouveia (1971), when reporting this disconnect between knowledge and practice, highlights that, although in previous years the relationship between investigation and action was not fully satisfactory, INEP played an important role in formulating educational policy. From the beginning of the 1970s, however, the scenario changed and the researches began to have little impact on school routines.

With the growth of research in postgraduate courses, which became even more accelerated in the last two decades of the last century, educational research entered the majority phase. More independent of governmental will, research began to have greater thematic diversity and also a more critical framework. However, two interrelated problems stood out: theoretical-methodological fragility and excessive use of fads in themes and analyses.

For Toniato and Fávero (2020), these weaknesses lead to a contestation of the scientificity of the field, especially because these are studies that are more related to the researchers’ personal trajectories than to the academic field. Thus, theoretical problems in education research are related to deficiencies in the process of training researchers. Affirming itself as a science requires epistemological vigilance that combats the spontaneity that has marked research in education and claiming the status of science for the field of education is not configured as an affirmation of the superiority of scientific knowledge compared to other orders of knowledge, but rather as a need for critical and objective reflection, free from skepticism and dogmatism, which overcomes spontaneity in academic productions in the field.

This scientific reflection does not necessarily oppose common sense knowledge, but needs to go beyond it in terms of problematizing reality, that is, a problem, “in itself, is not philosophical, nor scientific, artistic or religious. The attitude that man takes towards problems is philosophical, scientific, artistic or religious or of mere common sense”¹⁸ (SAVIANI, 1996, p. 19). Thus, the perception and problematization of reality are not exclusive to a certain order of knowledge; however, it is the scientist who transforms this problematization, in fact, into a research problem and, for this, epistemic choices are necessary.

In other words, “it is not simply about indicating the techniques and instruments used in the research, but their coherence with the adopted theoretical framework”¹⁹ (TONIETO; FÁVERO, 2020, p. 5). Epistemic choices, in turn, do not limit the work of researchers, nor are they attempts to create a neutral science, revealing absolute truths (TELLO; MAINARDES, 2015). On the contrary, these choices, by freeing researchers from spontaneity, guide them in the construction of research (FERREIRA, R.; OLIVEIRA, 2019).

Objectivity in science does not, therefore, mean the suppression of subjectivity, which would be impossible, nor is it to be confused with dogmatism; in fact, it is spontaneity

17- Free translation.

18- Free translation.

19- Free translation.

that tends to lead to research with ready answers, skepticism, and apologism. Objectivity in science is maintaining coherence between the theoretical framework adopted and the instruments and techniques used in research.

The purpose of strengthening research in the area of education in Brazil is anchored in this reality. Conceição Paludo (2018) listed three challenges to be overcome: “revision of the theoretical methodological framework that supports the role of researcher; the need for theory; take on the perspective of radical transformation of society²⁰”. The author also considers that “the great challenge for researchers is to assume the political dimension of thinking and doing research”²¹ (PALUDO, 2018, p. 18)

These three challenges are interrelated, since theoretical and epistemological fragility leads to studies disconnected from the essence of the problem and, consequently, to studies with little or no power to act and transform reality.

Therefore, to overcome these gaps, researchers in the field have dedicated themselves to mapping and analyzing academic work in education, through research on research, or research with a bibliographic nature.

These academic production review studies have grown and diversified in Brazil. And researchers have been pointing out their differences, in order to consolidate the area. Jefferson Mainardes (2018), for example, differentiates meta-research, that is, research which seeks to explain the research process, as the term “meta” suggests, of other types of literature review. “Meta-research differs from literature review, systematic review, state of the art, state of knowledge. Meta-research is discipline-oriented (area or field) and is engaged with the research advances in the discipline (area or field)”²². (MAINARDES, 2018, p. 306).

In studies, mainly in the health area, Finfgeld (2003) differentiates meta-synthesis from systematic review and literature review and argues that meta-synthesis involves a rigorous examination of a series of qualitative research with the aim of producing new interpretations, with more comprehensive conclusions from those that result from individual studies, enabling a refinement of existing “states of knowledge”.

Romanowski and Ens (2006), in turn, present the differences between “state of the art” research and “state of knowledge” research. For the authors, while the former need to cover an entire area of knowledge, including theses, dissertations, conference productions, articles in journals; “state of knowledge” research focuses on one of the publishing sectors.

This understanding that conceives “state of the art” and “state of knowledge” research as distinct is not, however, a consensus in the area of education. When reflecting on the purpose of the “state of the issue”, Nóbrega-Therrien and Therrien (2004) differentiate “state of the art” and “state of knowledge”, placing them as similar studies, but it is Norma Ferreira (2002) who presents the terms as different denominations for the same type of research.

20- Free translation.

21- Free translation.

22- Taken from the original in English.

Defined as bibliographic in nature, they seem to bring in common the challenge of mapping and discussing a certain academic production in different fields of knowledge, trying to answer which aspects and dimensions have been highlighted and privileged in different times and places, in what ways and in what conditions have been produced certain master's dissertations, doctoral theses, publications in journals and communications in conference and seminar annals. (FERREIRA, N., 2002, p. 257. free translation).

In the works that resulted from the survey of review studies of our research, differently from what was pointed out by Romanowski and Ens (2006), the terms “state of the art and state of knowledge” were used to refer to research with similar characteristics, such as as indicated by Vosgerau and Romanowski (2014) in a more recent study. Thus, in this article we use the term “state of the art” to refer to the set of works regardless of whether they have called themselves “state of the art” or “state of knowledge”, since this has been a more current position in the literature.

In addition to issues of self-designation, “state of the art” research needs to deal, in its corpus of analysis, with limitations arising from the theoretical-methodological fragility of research in education, which result in summaries that do not cover the basic points of the work, keywords disconnected from the researched topic, confusing titles; in addition to the difficulty of accessing publications in the area. But it is in this type of study, in its growth, that lies one of the possibilities to strengthen educational research in Brazil, both theoretically and methodologically; so that, ultimately, this research can have a greater impact on Brazilian education.

Data analysis and discussion: unity and diversity of state-of-the-art research

In this article, 47 works that called themselves a “state of the art” or “state of knowledge” review study were analyzed. The texts were fully read with a focus on the topic; corpus analyzed in the work; temporal, spatial and institutional frameworks; goal; type of review study; methodology; main conclusions; contributions to review studies.

The corpus of works analyzed in this study consists of 10 books, 13 texts from INEP's *Estado do Conhecimento* series and 24 articles published between 2001 and 2016. The articles come from 12 journals: *Educação e Pesquisa*; *Avaliação: Revista da Avaliação da Educação Superior*; *Ciência & Educação*; *Cadernos de Pesquisa*; *Ensaio: Avaliação e Políticas Públicas em Educação*; *Revista Brasileira de Educação*; *Ciência & Educação*; *Educar em Revista*; *Educação em Revista*; *ProPosições*; *Educação & Sociedade*; *Cadernos Cedes*²³.

23 - These Brazilian scientific journals are linked to the following institutions: *Educação e Pesquisa* (Faculdade de Educação da Universidade de São Paulo-FEUSP); *Avaliação: Revista da Avaliação da Educação Superior* (Universidade de Sorocaba (Uniso); *Ciência & Educação* (Universidade Estadual Paulista - UNESP/Campus Bauru); *Cadernos de Pesquisa* (Fundação Carlos Chagas - FCC); *Ensaio: Avaliação e Políticas Públicas em Educação* (Fundação Cesgranrio); *Revista Brasileira de Educação* (Associação Nacional de Pós Graduação e Pesquisa em Educação - Anped); *Educar em Revista* (Universidade Federal do Paraná - UFPR); *Educação em Revista* (Universidade Federal de Minas Gerais - UFMG); *Pro-Posições*; *Educação & Sociedade* e *Cadernos Cedes* (Universidade Estadual de Campinas-Unicamp).

The texts were signed by 77 different authors, in some cases by more than one. Researcher Elba Siqueira de Sá Barreto is the author of three works, Ângela Maria Martins, Marília Pontes Spósito, Marli Eliza Dalmazo de Afonso André are authors of two each. The themes covered in the studies were grouped into 17 major themes, namely: Literacy (2), Assessment (3), Environmental education (2), Rural education (1), Inclusive education (2), Early childhood education (1), Higher education (6), Teaching and school subjects (4), Teacher training (5), Gender and sexuality (2), Management, educational policies and financing (6), History of education (1), Youth, young people and adults (4), Pedagogical organization and school failure (2), Recreation and leisure (1), Information and communication technology (4) and Teaching work (1). There is a thematic diversity, with the following themes presenting the largest number of works: Higher education, Management, Educational policies and financing, and Teacher training, corroborating a study by Jacomini (2019). Note the absence of themes that were prominent in the period analyzed, such as ethnic-racial issues and “*ensino médio*”²⁴, among others.

Although in this article the terms “state of the art” and “state of knowledge” were adopted as synonyms (FERREIRA, N., 2002), that is, different terms that indicate the same type of review study, it is important to inform that there are distinct forms of self-designation among the 47 works. In 26 texts the term “state of the art” was found; another 4 referred to “state of the art” in the following way: qualitative approach of the “state of the art” type; “state of the art” bibliographic study; “state of the art” mapping; “state of the art” based on bibliographical survey. In 12 works, the denomination used was “state of knowledge”²⁵; in 5 the terms “state of the art” and “state of knowledge” were used as synonyms. The recurrence of use of the term “state of the art” is noteworthy, which seems to have become popular among researchers who, at times, attribute their own meaning to the term without theoretical and methodological foundations that justify its use in view of the perspective used, such as production that does not took academic research itself as its corpus.

The theme of the works was the base criterion for composing the research corpus, combined with others such as: type of production (theses, dissertations, articles, books, etc.), dissemination vehicle (journals), spatiality, temporality and institutionality, works produced in a given region, state, etc., in a specific period and in certain institutions. No indication of the temporality of the academic production analyzed in three works was found and one highlighted the 20th and 21st centuries in a very broad way. Therefore, in relation to such works, the temporal inclusion criterion was not considered, or not informed in the work.

The academic production that made up the corpus of works analyzed in this article covered a period of 52 years of text production, between 1961 and 2012. Different time intervals were observed, ranging from 2 to 20 years, with the interval of 2 to 10 years being the time frame for 16 works, 11 to 20 years for 15 and more than 21 years for 12 works. The “state of the art” is a type of review of an inventory and descriptive nature,

24 - *Ensino Médio* is the last three years of Brazilian basic education, taken from the age of 15 onwards.

25 - One of the works in INEP's *Estado do Conhecimento* series used the terms “state of the art” and “state of knowledge”.

therefore the temporal scope is an important aspect for analyzing academic production. Time frames involving a few years limit trend analysis; on the other hand, very long periods tend to require subdivisions that allow capturing both movements in the area of knowledge and in the academic and scientific field.

Regarding the spatial scope, works whose corpus was prepared in the national territory predominated (32); São Paulo (state) and the Southeast, South, Central-West and North regions were the spatial base for collecting the academic production of two works in the respective state and in each region; the South and Southeast regions, the city of Belo Horizonte and several countries (without specifying which ones) were the spatial delimitation for work in the respective city and in each of these regions. In seven works, no reference was found to the spatial scope of the academic production analyzed. It is interesting to note that the Northeast region did not make up the spatial scope for collecting the works analyzed in the research that makes up the corpus of this study.

In addition to the inclusion criteria related to the theme, temporality and spatiality, 26 works reported that the academic production analyzed was collected in specific institutions, associations or repositories. In relation to institutions, 10 works indicated that they composed their corpus with the academic production of postgraduate programs and two from the *Instituto Brasileiro de Informação em Ciência e Tecnologia*; the production published by ANPED and ANPAE were indicated in three and two works respectively and the repositories of CAPES and Universitas Brasil, in seven and one works, respectively.

The option to investigate academic production related to a theme, over a period of time over 10 years and with the national territory as the space for its production, present in most of the works investigated in this study, denotes attention from researchers regarding these criteria so that “state of the art” review studies can fulfill their purpose of indicating characteristics, trends and gaps in academic knowledge. On the other hand, it is important to reflect on the existence of self-titled “state of the art” work that restricted the corpus of its research to the academic production of two postgraduate programs from the same institution.

The type of production is also relevant in the composition of the corpus of “state of the art” research. To build knowledge about a topic it is important to consider its dissemination through different categories. In the works analyzed, theses and dissertations were the focus of investigation of 31 of them, articles (25), book (7), complete work published in event annals (7), expanded summary published in event annals (2), summary published in annals event (2); indicating that the categories of scientific production most investigated in research were theses, dissertations and articles. In a way, it can be said that the characteristics and trends of academic production that were constructed in the “states of the art” of research come from these three categories. A fact that highlights the relevance of the production of postgraduate students in the constitution of the area.

In addition to these, documents of various types were also indicated as objects of analysis, especially legislation; notes, news, reports, reviews, testimonials, editorials, presentations, documentary series, legal provisions, and normative acts; teaching career contests, lattes CV, statistical data. In other words, researchers expanded the scope of their research by introducing materials that are not necessarily academic production. Some studies investigated

the magazines *Educação e Sociedade*, *Educação e Realidade*, *Cadernos de Pesquisa*, *Revista Brasileira de Educação*, *Revista da USP/Educação e Pesquisa*, whose focus was not the articles, but the characteristics of the journal's publication in a given period.

For a better understanding of the academic production investigated in the 47 works, it is necessary to check the combination of categories, as more than one is normally analyzed, as can be seen in Table 1.

Table 1 - Combination of analyzed categories

Combination of analyzed categories	Number of researches where the combination was found
Thesis and dissertation	17
Article	8
Article, thesis and dissertation	4
Article, thesis, dissertation and complete work published in annals	4
Book, article, thesis and dissertation	3
Book and Article	2
Article, complete work published in annals, expanded abstract published in annals.	1
Book, article, thesis, dissertation, expanded abstract published in annals.	1
Complete work published in annals and expanded abstract published in annals	1
Article and thesis	1
Book, article, thesis, dissertation, complete work published in annals and expanded abstract published in annals	1
Dissertation	1
Total	44

Source: Own preparation based on analysis sheets. Available at: <https://drive.google.com/drive/u/0/folders/1zORojfgU7P2NBvdVktPBDjHlMfVNuG9>

According to Table 1, the most common combinations in the works were thesis and dissertation, and article, thesis and dissertation. It is noteworthy that there is little presence of books as an object of study in research and that articles are the most present production in isolation.

Another element about the “state of the art” research methodology that has been debated in the literature concerns to the way of reading the works collected for analysis. It is clear that a complete reading of the texts favors broader and more precise analyses, however this is not always possible, especially when the amount of work is large. Norma Ferreira (2002) considers that reading only the abstracts limits analyzes in “state of the art” research, although reading the texts in full is not a criterion for methodological validation of the research as occurs in metaresearch-type review studies (MAINARDES;

TELLO, 2016), or even systematic reviews (DAVIES, 2007), it favors the construction of knowledge about the scientific production.

Of the 47 works analyzed in the research, 25 contain information on the full reading of the texts, nine (9) only the summary and two (2), in addition to the summaries, other parts that contributed to clarifying doubts and complementing the analyses, in 11 there is no information about this procedure. It is noted, therefore, that this aspect of the “state of the art” research methodology was observed by the majority, but the lack of such relevant information in 11 works is worrying, suggesting the need for greater attention in the area to the methodological procedures of review studies.

Considering Vosgerau and Romanowski’s (2014) classification of review studies that map, evaluate and synthesize, with research being “state of the art” of the type that maps, it was verified, based on the analysis of the objectives of the 47 works, that the majority (41) developed the research with the purpose of mapping production and indicating characteristics and trends and six (6), in addition to these aspects, also analyzed the respective selected works, aiming at evaluating and producing a synthesis, including considering theoretical-methodological and critical balance. This suggests that there is a fine line between what characterizes “state of the art”, such as a review study that maps, and those that evaluate and synthesize, such as the integrative literature review (SOBRAL; CAMPOS, 2012), systematic reviews (DAVIES, 2007) and systematic research synthesis (GOUGH, 2007), among others.

Although review studies called “state of the art” have been more frequent in general research, corroborating the recommendation of Norma Ferreira (2002), researchers have not always engaged in dialogue with the literature that has been investigating studies of this nature to define the type study and respective methodology. This explains, in part, the option to call itself “state of the art” when the methodology used suggests that it is a systematic review, for example, or even when the work does not necessarily meet basic requirements and, to a certain extent, consensus on what a “state of art”.

With regard to the INEP’s *Estado do Conhecimento* series, the studies were characterized by the mapping of academic production related to the themes of literacy, assessment, teaching organization, curriculum, Youth and Adult Education, education and technology, early childhood education, training of teachers and education professionals (three studies were carried out on this topic), higher education, youth, policy and educational management, forming an important characterization of academic production.

The “state of knowledge” that investigated the cycles and continued progression adopted the catalog format, with the data presented through an informative summary about each work that made up the research corpus, also denoting different ways of conducting studies of this nature.

It is interesting to note that, in the process of realizing these “states of knowledge”, a gap was identified within the framework of the series itself. The notebook 9 of the series, *Educação e Tecnologia*, published in 2006, is the first study on the topic that brings together theses, dissertations and articles from the period between 1996 and 2002. The investigation is the result of a gap identified by Marli André (2002) in the “state of knowledge” about teacher training in Brazil (1990-1998) published in notebook 6, in

2002. The study seeks to analyze investigations that “focus on the role of communication technologies, multimedia and information technology in the educational process”²⁶ (BARRETO, R., 2006a, p. 9).

Of the 47 works analyzed, only 15 are in line with the literature on review studies, in some cases indicating the importance and contributions of this type of research. Among the authors cited in this dialogue are: Vosgerau and Romanowski (2014) and Norma Ferreira (2002, 2012), being the most cited; and, also, Barros (2015); Gamboa (2012); Barreto and Pinto (2001); Barretto (2009); Wittmann and Gracindo (2001); André (2002, 2015); D'Ambrosio (2012); Haddad (2002); Romanowski; Ens, (2006); Red (2005).

The investigation into the form of analysis (categories) and the aspects of academic production appreciated by the authors of the works that make up the research corpus that originated this article indicated two combined movements: the initial expectations of the researchers, taking into account the research objectives, and those that emerged from reading the works.

In accordance with the objective of mapping the academic production that characterizes “state of the art” research, most authors analyzed the corpus of their research considering: the main theme, the objectives, the theoretical-methodological aspects, the research question, the relationship with the existing production, the spatial distribution (state/region), the type of production (dissertation/thesis/article/events/others), the institution of origin, the field of research, the year of defense, the supervisor, the journal in which the work was published (in the case of articles) and the conclusions. Some added specific aspects such as the existence of discussion between macro and micro contexts and the theoretical and empirical nature of the work. In common with most works, there was a concern to characterize the production in the aspects referenced, enabling the reader to place certain knowledge in the academic and social context.

The analysis of the main results and contributions of the works to the review studies reiterates aspects indicated in previous research and reinforces the importance of investigations of this nature in guiding new research, in overcoming problems such as the recurrence of themes and objects of study without adding new knowledge and those related to a certain theoretical-methodological superficiality or lack of articulation between the theoretical framework and the empirical data that permeates part of the research in the area (CUNHA, 1979; FRANCO, 1988; WARDE, 1990; CHARLOT, 2006; GATTI, 2012; JACOMINI, 2014).

One of the main results indicated in most of the works was the survey and systematization of the characteristics of the analyzed production, which allowed understanding the “state of knowledge” of the theme investigated in terms of trends, thematic gaps, weaknesses and contribution to the construction of the area. An increase in production was also noted, correlated with the expansion of courses and postgraduate programs in education.

Other aspects highlighted are the predominance of research that analyzes local dimensions, with little dialogue with general issues and the fragility of research agendas

26- Free translation.

between the different fields of knowledge that make up the broad area of education, which often leads to fragmentation and dispersion of the investigation. Therefore, they can be characterized as research that is more related to the personal trajectories of researchers than to the academic field, as highlighted by Toniato and Fávero (2020).

An important analysis result was the diversity in the way of approaching the researched themes, favoring the production of new knowledge regarding themes and objects of study already investigated. The need to establish a network of researchers to carry out more comprehensive review studies that advance the evaluation and synthesis of academic production was also highlighted, such as INEP's *Estado do Conhecimento* series, as already highlighted by André (2001). Research that adopted a comprehensive time frame indicated advances and changes in knowledge, with explanations for divergences and trends. Finally, some works are exemplary in methodological terms and can guide new researchers who intend to embark on "state of the art" review studies, such as the study in the INEP *Estado do Conhecimento* series on youth and schooling coordinated by Spósito (2002).

In the universe of 47 works, despite their self-designation, doubts among some of them were raised, regarding its classification as "state of the art" because they had a restricted scope, such as: the production of only two postgraduate programs from the same higher education institution; the analysis of just one category of production or because they did not have academic production as an object of study, but primary sources such as legislation; statistical data and information collection through interviews. It was found that, despite the characteristics of "state of the art" research recorded in the literature, the term was used in some works in a broader sense to designate investigations that sought to collect and systematize a set of data, information, knowledge in order to constitute a "state of knowledge", that is, what is known about a topic, regardless of whether they come from academic research.

Final thoughts

When resuming the objectives of the research and this article, it can be stated that "state of the art" review studies are characterized by investigations that adopt the theme as the main inclusion criterion and that to this criterion are combined the temporal, spatial and institutional, in the selection of the research corpus. Regarding the publication category, among the most analyzed are theses, dissertations and articles. Thus, even with the important participation of the 13 "states of knowledge" published by INEP in the corpus analyzed here, whose coordination was carried out by experienced researchers, the knowledge that the area has been building about its production is supported by research carried out by students in the process of training in postgraduate programs and through articles in journals, the latter being the main means of scientific dissemination today. It is important to think about the low participation of books as an object of study, since they constitute an important reference in the dissemination of educational knowledge and in the training of new researchers. Therefore, a closer look at this category of academic production can deepen the understanding of the characteristics of what the area has been producing.

It is possible to affirm, based on the data analyzed, that there is a common basic repertoire on theoretical-methodological aspects for the development of “state of the art” research, shared among researchers. However, it is necessary to advance in the understanding and establishment of criteria that are fundamental to the development of these studies to guarantee their scientificity, understood as the theoretical effort to understand the objects investigated and the selection of the research method and procedures. As noted throughout the text, some studies presented weaknesses in the research configuration with regard to inclusion criteria. Considering that the purpose of “state of the art” research is to map, analyze and discuss academic production to indicate what and how is being produced, outline the characteristics and inform trends with a view to new directions and configurations, theoretical-methodological improvement is always welcome.

Given the accumulation of discussions regarding review studies and the fact that little dialogue was found between the works investigated and the specific literature, greater attention to the aspects that characterize this type of research can be a fruitful path to overcoming weaknesses, as well as the shared systematization of methodologies for carrying out “research on research” in the area of education, including delimiting its specificity in relation to other fields of knowledge.

The research analysis indicates four important challenges to review studies, more specifically to the “states of the art”, so that they fulfill the objective of contributing to meta-knowledge and guiding strategies for consolidating the area and its relationship with other scientific fields, in the face of movements historical, social and academic.

1) The need for researchers and research groups to pay attention to the inseparability and coherence between the content and the way of approaching it, and to make epistemic choices in line with the theoretical framework, method and methodology adopted. These inherent procedures of doing research, in the case of review studies, in the specificity of “states of the art”, require two combined movements: greater dialogue with the literature that has been dedicated to these studies as a way for the researcher to appropriate the consensus already outlined and the commitment to improving methodological procedures related to its theoretical-practical construct, resulting from reflections on the act of research itself.

2) In a context of significant increase in Postgraduate Programs in Education and a national scenario permeated by anti-science discourses, it is urgent to establish networks of researchers to carry out review studies, “state of the art”, that contribute to knowledge and the evaluation of the knowledge produced, in an effort to overcome problems already highlighted in the literature and reiterated in this study.

3) Another challenge to “state of the art” research is overcoming the limits imposed by reading only the abstracts, as indicated by Norma Ferreira (2002). Given the nature and objectives of these researches, the complete reading of the works that make up the corpus of studies is a relevant aspect for deepening the analyzes and knowledge about academic production. In this sense, the works analyzed here indicated two viable possibilities for facing this challenge: the constitution of groups of researchers capable of making this challenge viable and, even if it is impossible to read the texts in full, reading parts of the

work that can provide relevant information about the characteristics of the research such as: introduction, methodology and conclusions.

4) Considering the paths followed by education research with its beginning outside the university and its short trajectory within it (ANDRÉ, 2006), “state of the art” studies can contribute to the repositioning of educational research agendas. From this perspective, one of the challenges for its “maturity” lies in improving and increasing research that maps, evaluates and produces syntheses to guide researchers and their commitment to science and social demands.

Added to these challenges is the precariousness that science and research, especially in the area of education, have been suffering in the Brazilian political context in recent years, with impacts and losses for researchers, public universities and research institutions. There are attacks, on the one hand, through discourse against research that contributes to the country’s democratization process and the improvement of the quality of education and, on the other, through drastic cuts in the resources allocated to them.

Regarding these speeches, Afonso (2022, p. 7) asserts that “[...] only with good research work can we counter the devaluation/subalternization to which educational sciences have been subjected by retrograde, neoconservative and neoliberal views and policies [...]”²⁷. Still, according to the author,

[...] when extreme right-wing groups, radical neoconservatives, right-wing populists or even traditional right-wing groups strongly attack Education and educational sciences, there is nothing better than doing rigorous work from a methodological and theoretical point of view - conceptual and empirical. (AFONSO, 2022, p. 8)²⁸.

In line with such attacks, there is an ostensible cut in budgetary resources for the development of scientific research that, to a large extent, contributes to the development of public policies. There was an abrupt reduction in resources from 2014 to 2021 (SILVA, J.; ZELESCO, 2022). For the year 2022, the vetoes carried out by the presidency followed the process of destruction and dismantling of what has been carried out in Brazil since the 1988 Constitution. The cut in funding for research affected important actions developed by MEC²⁹, INEP, CAPES and FNDE³⁰ (FINEDUCA, 2022, p. 2-3) and in public universities - the predominant locus of research development - among others.

Furthermore, as a reflection of this policy of dismantling scientific research in the country, the drop in the production of scientific articles, the reduction in scholarships for researchers, resulting in disincentives for young scientists and the flight of researchers from the country.

This scenario highlights the need to resist and expand “state of the art” studies in the area of education in order to qualify research and provide elements for the planning and implementation of educational policies.

27- Free translation.

28- Free translation.

29- Acronym for “Ministério da Educação” (Brazilian Ministry of Education).

30- Acronym for “Fundo Nacional para o Desenvolvimento da Educação (National Fund for Education Development).

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Márcia Aparecida Jacomini is a professor at Departamento de Educação da Escola de Filosofia, Letras e Ciências Humanas da Universidade Federal de São Paulo (Unifesp); Doctor in education from Faculdade de Educação da Universidade de São Paulo (FEUSP).

Hericka Karla Alencar de Medeiros Wellen is a teacher at Centro de Educação Integrada (CEI), Natal, RN; Doctor in education from Faculdade de Educação da Universidade de São Paulo (FEUSP).

Cileda dos Santos Sant'Anna Perrella teaches the pedagogy course at Faculdade Zumbi dos Palmares; Researcher at Rede Escola Pública e Universidade (REPU) (REPU), São Paulo, SP, Brazil; Doctor in education from Faculdade de Educação da Universidade de São Paulo (FEUSP).

Maria Aparecida Guedes Monção is a professor at Faculdade de Educação da Universidade Estadual de Campinas, Campinas, SP, Brazil (Unicamp); Doctor in education from Faculdade de Educação da Universidade de São Paulo (FEUSP).