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The Teaching Area in Brazilian Postgraduate Education: Identity, Potentialities, and Challenges in Academic Production

A Área de Ensino na Pós-Graduação Brasileira: Identidade, Potencialidades e Desafios na Produção Acadêmica

El Área de Enseñanza en el Posgrado Brasileño: Identidad, Potencialidades y Desafíos en la Producción Académica

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Abstract

This article presents a narrative literature review of academic production on the Teaching Area in the context of Brazilian postgraduate education, focusing on studies published between 2000 and 2024. Based on the analysis of 24 works, including articles, dissertations, and theses, the study seeks to understand how the Teaching Area has been characterized in terms of its identity, potentialities, and challenges. The results were organized into three thematic axes: conceptions and development of the Teaching Area; analyses of courses and programs; and studies on scholarly output. The findings reveal a field in expansion, marked by epistemological diversity, interdisciplinarity, and the growing social impact of its postgraduate programs. At the same time, challenges emerge related to the consolidation of its epistemological identity, methodological strengthening of research conducted at the programs, systematization and dissemination of research, and definition of evaluative indicators sensitive to the specificities of the Area. The review highlights the strategic role of the Teaching Area in the Brazilian National Postgraduate System, emphasizing its potential to qualify formative practices, inform policies, and expand the social reach of research in science education and other areas of emphasis that comprise the Teaching Area in Brazil.

Keywords: Teaching Area, postgraduate education, literature review

Resumo

Este artigo apresenta uma revisão narrativa da literatura sobre a produção acadêmica referente à Área de Ensino no contexto da pós-graduação brasileira, contemplando estudos publicados entre 2000 e 2024. A partir da análise de 24 produções, entre artigos, dissertações e teses, buscou compreender como a Área de Ensino vem sendo caracterizada quanto à sua identidade, potencialidades e desafios. Os resultados foram organizados em três eixos temáticos: concepções e desenvolvimento da Área de Ensino; análises das produções de cursos e programas; e estudos sobre produções acadêmicas. Os achados revelam um campo em expansão, marcado pela diversidade epistemológica, pela interdisciplinaridade e pelo crescente impacto social de seus programas de pós-graduação. Ao mesmo tempo, emergem desafios relacionados à consolidação de sua identidade epistemológica, ao fortalecimento metodológico das pesquisas conduzidas nos programas, à sistematização e divulgação das pesquisas e à definição de indicadores de avaliação sensíveis às especificidades da Área. A revisão evidencia a situação da Área de Ensino no Sistema Nacional de Pós-Graduação, destacando seu potencial para qualificar práticas formativas, orientar políticas e ampliar o alcance social da pesquisa em Educação em Ciências e demais ênfases que compõem a Área de Ensino no Brasil.

Palavras-chave: Área de Ensino, pós-graduação, revisão de literatura

Resumen

Este artículo presenta una revisión narrativa de la literatura sobre la producción académica relativa al Área de Enseñanza en el contexto del posgrado brasileño, abarcando estudios publicados entre 2000 y 2024. A partir del análisis de 24 producciones, entre artículos, disertaciones y tesis, se buscó comprender cómo el Área de Enseñanza ha sido caracterizada en términos de su identidad, potencialidades y desafíos. Los resultados se organizaron en tres ejes temáticos: concepciones y desarrollo del Área de Enseñanza; análisis de cursos y programas; y estudios sobre producciones académicas. Los hallazgos revelan un campo en expansión, marcado por la diversidad epistemológica, la interdisciplinariedad y el creciente impacto social de sus programas de posgrado. Al mismo tiempo, emergen desafíos relacionados con la consolidación de su identidad epistemológica, el fortalecimiento metodológico de las investigaciones producidas en los programas, la sistematización y divulgación de las investigaciones y la definición de indicadores de evaluación sensibles a las especificidades del Área. La revisión evidencia el papel estratégico del Área de Enseñanza en el Sistema Nacional de Posgrado, destacando su potencial para cualificar prácticas formativas, orientar políticas y ampliar el alcance social de la investigación en Educación en Ciencias y otras áreas de énfasis que componen el Área de Enseñanza en Brasil.

Palabras clave: Área de Enseñanza, posgrado, revisión de literatura

Introduction

In the last two decades, the Teaching Area in Brazil has consolidated its presence in the National Graduate System (SNPG), following the expansion of the field of Science Education and strengthening its identity as an interdisciplinary space for knowledge production. Although its origin is linked to the Postgraduate Programs (PPGs) in Education, its creation in 2000 represented a decisive institutional milestone for the recognition and organization of this area of knowledge, aimed at the training of professionals and researchers working at different levels and modalities of formal and non-formal education. It then became the Area 46 among the other areas through which the Commission for the Improvement of Higher Education Personnel (CAPES) organizes the evaluation of PPGs.

The consolidation is directly influenced by the growth of research in Science Education in the country. Since the 1970s, the field has expanded from a few groups and researchers to reach, at the beginning of the twenty-first century, a robust set of research lines, PPGs, scientific associations, and recognized journals, often operating with networked collaborations.

The Teaching Area is characterized by a plural production, which articulates knowledge from the natural sciences, human sciences, mathematics, languages and technologies. This plurality and heterogeneity, already pointed out by Nardi (2016) and Carvalho (2004), give the Area fluid boundaries and an identity under negotiation (Mortimer & Scott, 2002). Such epistemic diversity drives the Area beyond traditional disciplinary limits, allowing the integration of theoretical, practical, and methodological dimensions in the study of teaching and learning processes. As a result, the field has produced reflections and interventions that dialogue with the contemporary educational

challenges and meet emerging social demands, aligning with the perspective of a critical and emancipatory scientific education proposed by Santos (2008), which recognizes the social and political role of science and education in the formation of critical and engaged citizens.

A characteristic feature of the Area is the more intense presence of professional programs when compared to other areas of the SNPG. Pereira and Rôças (2023) and Gatti (2014) discuss how this modality has been consolidated as a strategic space for articulation between research and practice, although it faces tensions related to the evaluation of its output and the definition of quality criteria. Of the 182 existing programs, 83 are professional master's and nine are professional master's and doctoral programs. In this scenario, there is a small superiority of professional programs (92) compared to academic programs (90). In relation to doctorates, academic programs (41) surpass professional doctorate programs, which were authorized to operate in 2018. At the same time, a steady increase in degrees issued over the last four years signals a continuous growth expected for the next evaluation period, 2025–2029 (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, 2025). Cyrino et al. (2023) highlight that the expansion of PPGs in Teaching stems from social demands for more qualified researcher-teachers, as well as the expansion of policies on teacher professional development.

The expansion of the programs also demands the constant improvement of the evaluation processes and training guidelines. The CAPES area documents and evaluation sheets (2019) highlight the need for programs to develop strategic planning, strengthen their internal organization, ensure coherence between objectives and results, and expand their capacity for qualified intervention in educational contexts. In this scenario, the evaluation—internal and external—functions as a structuring mechanism for academic quality and as a guide for the activities of research, training, intellectual production, and social insertion of the PPGs. This scenario of accelerated growth and search for consolidation is consistent with analyses by Leite and Polidori (2021) and Mesquita et al. (2023) on emerging areas in Brazilian postgraduate studies, which tend to grow rapidly, but face tensions inherent to the search for scientific legitimacy and epistemological, methodological, and institutional challenges.

In addition to this plural nature, academic production in the Teaching Area has been the object of analysis by several researchers. Studies such as those by Fracalanza (1993) and Teixeira et al. (2012) already indicated that research in Science Education, although advancing in topics such as scientific literacy, pedagogical innovation, and teacher training, faced challenges related to methodological consolidation and systematization.

Besides, some recent studies have interpreted part of the production of the Teaching Area as translational research in teaching (Colombo et al., 2019), that is, projects that seek to systematically articulate the knowledge produced in scientific research with the transformation of concrete educational contexts. From this perspective, studies are valued to, by promoting theoretical and methodological advances, aim at intervention in real teaching-learning situations.

Thus, understanding how the Teaching Area has been studied and characterized in scholarly literature contributes to the knowledge of its trajectory, challenges, and perspectives in the SNPG. Research on the field help to understand its identity, advances, and gaps, in addition to contributing to the strengthening of programs and the consolidation of knowledge production in Science Education and other emphases that make up the Teaching Area in Brazil.

The Teaching Area is understood, in this article, as a field of production of scientific knowledge, historically constituted from specific social conditions, networks of researchers, and institutions that share problems, methods, references, and research practices. The notion of academic-scientific field (Caregnato et al., 2018, 2022) allows us to recognize the Area as a space that, in addition to being an administrative frame by CAPES, is an arena of symbolic disputes and legitimation of ways of doing science. Thus, the Area also demarcates its mode of knowledge production by reference to an epistemological identity, that is: recurrent problems, predominant theoretical references, mobilized methodologies, modes of circulation and validation of production, as well as differentiation in relation to other areas. It is, therefore, an identity under construction and in dispute, which is not reduced to a stable conceptual definition, but which is expressed in research practices and in the narratives produced about the Area itself (Klüber & Christofoletti, 2023).

This article aims to present an analysis of what has been produced by the scientific literature on the Teaching Area from the year of its creation until 2024. From a review of articles, theses and dissertations, it seeks to answer the following research question:

- What does research produced between 2000 and 2024 say about the identity, potentialities, and challenges of the Teaching Area in the context of Brazilian postgraduate education?

The following sections present the methodological procedures adopted, the analysis of the results organized into thematic categories and, finally, the conclusions that summarize the characteristics, trends, and challenges identified.

Methodology

This study is characterized as a narrative literature review, whose objective is to analyze and synthesize the academic production on the Teaching Area in the context of Brazilian postgraduate education between 2000 and 2024. Narrative review is an appropriate method to examine and interpret the literature of a specific thematic field, allowing the identification of trends, challenges, advances, and gaps in knowledge in an in-depth and contextualized way (Rother, 2007). Unlike systematic or scoping reviews, narrative review favors interpretative analysis and critical synthesis, enabling an integrated understanding of the characteristics and dynamics of the literature on a topic. Its centrality lies in the articulation of ideas within specific areas of knowledge, in order to present how scientific production has been treating a particular object of knowledge (Ogassavara et al., 2023).

To construct the corpus, two complementary databases were used:

- Scientific Electronic Library Online (SciELO), for the search of scientific articles published in journals;
- Brazilian Digital Library of Theses and Dissertations (BDTD), for the identification of dissertations and theses produced in PPGs.

Book chapters, technical reports, institutional documents, or papers published in conference proceedings were not considered, as they are mostly not indexed in databases that allow systematic search and retrieval for review. The inclusion of theses and dissertations is justified by the importance of capturing the production of researchers in training, especially in a field in consolidation such as the Teaching Area, where this type of work represents a significant contribution to the advancement of knowledge and to the training of new researchers.

The descriptors used for document retrieval were defined based on the central question of the study: (1) "pós-graduação" AND "área de ensino" AND "CAPES"; (2) "pós-graduação" AND "ensino", and (3) "ensino de ciências" AND "pós-graduação". These keywords were employed in Portuguese language considering most of the publication on the topic is writing in it. The selection of the *corpus* was based on inclusion and exclusion criteria, described below.

- Inclusion criteria: (a) documents that address the Teaching Area (46) of Brazilian postgraduate studies as an object or central context of analysis; (b) works published between 2000 and 2024; and (c) articles, theses, and dissertations available in the consulted databases.
- Exclusion criteria: (a) documents that mention "teaching" in a broad sense, without specific relation to the Teaching Area or postgraduate education; (b) works that deal with other areas of CAPES without connection to Area 46; and (c) studies that address teaching in non-academic contexts or without connection to Brazilian postgraduate studies.

The selection process followed the stages of identification in the databases, screening, and eligibility check through the reading of titles and abstracts, and final inclusion after reading the texts in full, as shown in Figure 1, below. In this last stage, articles that addressed self-evaluation processes in postgraduate programs in Teaching were separated and were intended for another analysis that is beyond the scope of this article.

Figure 1

Document selection process

Process stage	Details
Identification	36 works retrieved according to the search string
Screening and eligibility check	After screening: SciELO (10) | BDTD (24) 34 documents considered within the review's scope as they discussed the Teaching Area of *stricto sensu* postgraduate education
Inclusion	Included works: SciELO (03) | BDTD (22) 25 documents discussing the Teaching Area of *stricto sensu* postgraduate education without a central focus on self-evaluation procedures, with 1 duplicate excluded
Final result	Corpus for review: 24 works

The corpus of the review was composed of 24 documents, including scientific articles (3) and theses/dissertations (21), as detailed in Figure 2, below. To facilitate analysis and referencing throughout the text, each of these productions will be identified by a specific code (e.g., T1). Thet will not be listed again among the bibliographic references at the end of this article to avoid duplication of information and favor conciseness, since the complete data of each work are presented in the Figure that follows.

Figure 2

Documents comprising the corpus under analysis

Code	Bibliographic reference	Base
T1	Cyrino, M. C. de C. T., Rizzatti, I. M., & Rôças, G. (2023). Os Desafios da Área de Ensino: É Caminhando Que Se Faz o Caminho. *Boletim de Educação Matemática*, 37, 1-2.	SciELO
T2	Derossi, I. N., Ferreira, D. C. (2023). Análise da Relação Entre os Objetivos dos Programas de Pós-Graduação Stricto Sensu da Área de Ensino de Ciências e a Formação para o Ensino Superior. *Ciência & Educação*, 29, e23002.	SciELO
T3	Zihlmann, K. F., Mazzaia, M. C. (2022). Improvement of Educational Products Validation form in professional postgraduate programs. *Revista Brasileira de Enfermagem*, Brasília, 75(2), e20210063.	SciELO
T4	Shigunov Neto, A. (2022). *Gênese e Desenvolvimento das Pesquisas em Educação em Ciências nos Programas de Pós-Graduação da Área de Ensino da CAPES*: Estudo da Produção e do Perfil Profissional e Acadêmico (Tese de Doutorado, Universidade de Campinas, Campinas, SP).	BDTD

Figure 2

Documents comprising the corpus under analysis (continuation)

Code	Bibliographic reference	Base
T5	Loper, J. G. (2023). *Discursos presentes na trajetória inicial de uma rede paranaense de programas de pós-graduação na área de ensino da CAPES* (Tese de Doutorado, Universidade Federal do Paraná, PR).	BDTD
T6	Aires, J. P. (2017). *Análise de plágio em teses e dissertações dos programas de pós-graduação na área de Ensino no período de 2010 a 2012*. (Tese de Doutorado, Universidade Tecnológica Federal do Paraná, Ponta Grossa, PR).	BDTD
T7	Openheimer, M., & Ferraz, D. P. de A. (2024). Ensino de Química na Perspectiva Inclusiva: Um Mapeamento nos Programas de Pós-Graduação na Área de "Ensino". *Revista Debates Em Ensino De Química*, 10(1), 64–89.	BDTD
T8	Riberio, I. W. (2024). *Área de Ensino em Arquivo*: práticas de governo da CAPES – Brasil (Tese de Doutorado, Universidade do Vale do Taquari, Lajeado, RS).	BDTD
T9	Vieira, A. C. (2023). *Avaliação da divulgação da produção científica da pós-graduação brasileira:* Um olhar para as áreas de Ensino, Educaçâo e Ciências Biológicas I, II e III (Tese de Doutorado, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS).	BDTD
T10	Ribeiro, D. N. (2020). *Contribuições da divulgação científica para o ensino de Ciências no Brasil e seu reflexo nos Programas de Pós- Graduação da área 46 da CAPES* (Dissertação de Mestrado, Instituto Brasileiro de Informação em Ciência e Tecnologia, Rio de Janeiro, RJ).	BDTD
T11	Amaral, J. F. A. do. (2013). *Área de Ensino reflexões a partir dos programas de pós-graduação Stricto sensu brasileiros centrados nas Biociências e Saúde* (Dissertação de Mestrado, Fundação Oswaldo Cruz, Instituto Oswaldo Cruz, Rio de Janeiro, RJ).	BDTD
T12	Audi, A. G. (2018). *Um perfil formativo, técnico-acadêmico e profissional dos egressos do Programa De Pós-graduação Em Educação Para a Ciência/ FC UNESP [1997-2014]* (Dissertação de Mestrado, Universidade Estadual Paulista, Bauru, SP).	BDTD
T13	Barros, W. I. T. dos S. (20125). *Caracterização Da área De Ensino De Biologia E Ciências No Mestrado Profissional Da UFRN a Partir Das Dissertações* (Dissertação de Mestrado Universidade Federal do Rio Grande do Norte, Natal, RN).	BDTD
T14	Dávila, E. da S. (2013). *Análise Das Dissertações E Teses Dos PPG Da área Do Ensino De Ciências E Matemática Do RS - 2000 a 2011*(Dissertação de Mestrado, Universidade Federal de Santa Maria, RS).	BDTD
T15	Silva, P. A. D. da. (2016). *Um Panorama Da Evolução Da Modalidade Mestrado Profissional No Sistema Nacional De Pós-Graduação* (Tese de Doutorado, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS).	BDTD

Figure 2

Documents comprising the corpus under analysis (continuation)

T16	Belém, S. L. (2023). *Destilações sobre as pesquisas na área de educação em Ciências*: um olhar voltado para os aspectos metodológicos (Dissertação de Mestrado, Universidade Federal do Paraná, Curitiba, PR).	BDTD
T17	Alves, A. C. T. (2018). *O programa de pós-graduação da Rede Amazônica de Educação em Ciências e Matemática:* estudo da trajetória profissional de egressos (Tese de Doutorado, Universidade Federal do Mato Grosso, MT).	BDTD
T18	Kich, S. R. (2024). *Discursividades sobre o corpo em produções acadêmicas da área de ensino*: uma perspectiva arquivística (Dissertação de Mestrado, Universidade do Vale do Taquari, Lajeado, RS).	BDTD
T19	Pereira, J. C. (2020). *Práticas e contextos da produção científica no Ensino De Ciências Na Perspectiva Da Alfabetização Científica Nos Anos Iniciais Do Ensino Fundamental* (Tese de Doutorado, Universidade Federal do Rio Grande do Sul, Porto Alegre).	BDTD
T20	Lessmann, C. (2020). *A educação sobre drogas "em Cima Da Mesa":* estado do conhecimento na área de Ensino (Dissertação de Mestrado, Universidade Federal de Santa Catarina).	BDTD
T21	Zuquetto, S. da S. (2021). *Produtos educacionais na área de ensino*: contribuições de um itinerário didático-pedagógico à luz da acessibilidade pedagógica (Dissertação de Mestrado, Universidade Franciscana, Santa Maria, RS).	BDTD
T22	Macedo, J. C. P. de. (2023). *Tendências, silenciamentos e perspectivas das pesquisas brasileiras sobre questões sociocientíficas na educação em ciências* (Dissertação de Mestrado, Universidade Federal de São Carlos, Araras, SP).	BDTD
T23	Alves Filho, M. A. (2022). *Inovação no ensino de ciências no Brasil*: para que finalidades educativas? (Dissertação de Mestrado, Universidade Federal de Goiás, Goiânia).	BDTD
T24	Mello, A. S. de. (2014). *Estudo sobre a pesquisa acadêmica brasileira acerca da avaliação no ensino de ciências* (Dissertação de Mestrado, Universidade Estadual do Oeste do Paraná, Cascavel, PR).	BDTD

The analysis of these 24 productions was carried out in two complementary stages. In the first, an exploratory reading was carried out, aimed at identifying the object, objectives, methodological approach and main results of each work. In the second stage, a thematic analysis was carried out, through which the studies were categorized

into axes that emerged from the reading of the set of works, allowing the organization and interpretation of the trends, characteristics, and challenges of the Teaching Area in postgraduate education. This grouping was carried out *a posteriori*, based on an inductive categorization, characteristic of conventional content analysis (Hsieh & Shannon, 2005; Mayring, 2000), which corresponds to the typical inductive approach of narrative reviews and enables a deep and contextualized understanding of the features and dynamics of the field. The procedure resulted in the organization of the results into three thematic axes:

1. Analyses on the Teaching Area: studies that discuss the constitution, identity, and meanings of the Area;
2. Analyses of Courses and Programs: works that examine structures, dynamics, and policies of the PPGs; and
3. Analysis of Scholarly Output: publications on themes, methodologies, and trends present in the scientific production of the Area.

After this initial grouping, an in-depth reading of the set of productions in each axis was carried out to confirm and elaborate the common emerging sense, ensuring the coherence and robustness of the categorization (Mayring, 2000), as shown in Figure 3.

Figure 3

Stages in the process of document thematic analysis

Stage	Procedure	Objetive
1	Exploratory reading of the productions and identification of the structuring elements.	Identify the object, conceptions, methodological approach, and results.
2	Grouping of documents into thematic axes.	Organize and categorize trends and characteristics of the Area.
3	In-depth reading of the set of productions in each axis.	Confirm and elaborate the common emerging sense in each axis.

The selection of documents dealt with in this article stems from a specific interest in analysis. Only works that explicitly thematize the Teaching Area of Brazilian postgraduate education as an object or central context of investigation were included, leaving out studies that, although relevant to the field of Science Education and related areas, do not take Area 46 as their main focus. This way, the set of 24 works does not intend to represent the totality of the production of the Teaching Area, but to characterize a particular segment of the field: the one focused on discussing its constitution, characteristics, potentialities, and challenges. The reduced number of works recovered for the defined criteria also contributed to the option for a narrative literature review, since, in view of a limited set of references, it was more interesting to deepen the characterization of the available texts in relation to the object of analysis than to synthesize evidence with the intention of fully representing the knowledge produced in the Area.

This study has some limitations inherent to its methodological design that must be acknowledged. First, the corpus was restricted to a specific set of national databases and to a defined time frame (2000–2024), which may have led to the exclusion of relevant publications on the Teaching Area available in other repositories or in documentary formats not retrieved (such as book chapters, institutional documents, and proceedings). In addition, a narrative review was chosen to favor interpretation and critical synthesis (Elias et al., 2012; Ogassavara et al., 2023; Rother, 2007). The choice for this modality is grounded on the diversity of methodological designs and approaches of the reviewed/available studies, which would make it difficult to systematically quantify trends. However, this approach limits the generalization of the results and the accurate measurement of the frequency of certain themes or methodological approaches.

These limitations do not invalidate the findings, but indicate that they should be interpreted in the light of the choices made in terms of scope and methodology. By making such restrictions explicit, this article seeks to offer transparency regarding the reach of its conclusions and, at the same time, point out possibilities for future investigations that expand the number and type of databases resorted to, include other types of academic output, and adopt complementary methodological strategies, in order to deepen and refine the understanding of the Teaching Area in the context of Brazilian postgraduate education.

Findings

This section presents the findings from the literature review, organized based on the thematic axes that emerged from the analysis of the selected productions. Figure 4, below, relates the reviewed documents to the thematic axes built in the analysis process, offering an overview of their distribution within the corpus.

Figure 4

Corpus of documents organized by thematic axes

Thematic axis	Documents
Axis 1 – Teaching Area The texts that make up this axis discuss structuring and identity aspects of the Teaching Area, highlighting its consolidation and relevance in the scientific and social scenario. The analyses emphasize the need to strengthen debates on training policies, interdisciplinarity, institutionalization of research, and dialogues with Science Education.	T1, T8, T9, T11, T17
Axis 2 – Courses and Programs This axis brings together studies that examine Area 46 courses and programs based on their training structures, contributions to teacher development, interfaces with public policies, and challenges of academic innovation. The works discuss models of curricular organization, intellectual production, institutional trajectories, and modes of operation that characterize the PPGs in Teaching.	T2, T5, T7, T10, T12, T15

Figure 4

Corpus of documents organized by thematic axes

Thematic axis	Documents
Axis 3 – Scholarly Output The texts classified in this axis investigate theses, dissertations and articles in the field itself, mapping research profiles, methodological approaches, objects of study, and institutional policies related to the development of the Teaching Area. These studies analyze what the scholarly output itself reveals about the growth, challenges and epistemological specificities of the area.	T3, T4, T6, T13, T14, T16, T18, T19, T20, T21, T22, T23, T24

The organization of the data into thematic axes stemmed from the stages of the initial document sorting, while the categories of analysis were established a posteriori, through an inductive reading of the collected material. The classification and grouping of productions into thematic axes resulted from a methodological process articulated and coherent with the narrative review approach (Ogassavara et al., 2023). In the content analysis that led to the construction of the axes, we paid attention to the structural dimensions of the works, object, conception, methodology, and main results, allowing the data themselves to guide the interpretative construction and reveal trends, recurrences, and specificities of the Teaching Area. The analysis and discussion of the results are presented below, in sections corresponding to each thematic axis outlined in the corpus.

Teaching Area: Fertile Ground for Diversity of Thought

The texts that take the Teaching Area as an object of study highlight a central concern: to understand how the area has been constituted as a scientific, formative and institutional field within of Brazilian postgraduate education. The studies highlight that the discussions about the training of researchers in Teaching and their scientific output are linked to the search for legitimacy, visibility, and consolidation of the Area in the SNPG.

The productions grouped in this axis address different objects related to the constitution and strengthening of the Teaching Area. Figure 5, below, details the works gathered in axis 1.

Figure 5

Documents classified in Axis 1 – Teaching Area

Dimension	Document contents
Object	T1, T8, T11. Intrinsic themes in the Area of Teaching (trajectory, epistemology, fields of action, and challenges) T9. Evaluation of scientific production (Formulation of public policies) T17. Graduates of the Amazonian Network of Science and Mathematics Education (professional trajectory and impacts for the Area)
Conceptions and meanings of the Teaching Area	T1. "(...) It is a fertile ground for diversity of thought, where scholars with backgrounds in different areas bring their epistemological boundaries. (...) This diversity allows for a multidisciplinary approach that enriches the topics explored, resulting in plural investigations and perspectives. (...) [It] is considered essentially translational research because it moves between basic science and the application of the knowledge produced and has a character" (p. 4). T8. "It can be said that the Teaching Area of knowledge in Brazilian CAPES is a recent form of research, which seeks to differ from research in Education, having not much more than a decade of existence; (...) a simple fold of our knowledge, and which will disappear as soon as it has found a new form" (p. 35). T9. "(...) [It] has its specificities and needs that should be valued and made visible in evaluation public policies. The study argues that it is necessary to go beyond the scientific article to analyze the profile of academic production, which suggests the importance of typologies of dissemination that may be more common in the Teaching Area, such as educational products, reports and others" (p. 8). T11. "(...) field of knowledge/research; works in research training, the professional in the Teaching Area needs to master specific knowledge, pedagogical knowledge, pedagogical knowledge of the content, and methodological knowledge" (15). T17. "(...) to train professional researchers engaged in the construction of citizenship, developing research and producing knowledge in the Area, aiming to bring about and implement projects that promote regional and local development" (p. 323).
Methodological approach	<u>Qualitative</u> T1, T17. Case study T8. Foucauldian arche-genealogy T9, T11. Desk research
Findings: possibilities, prospects and conclusions	T1. Commitment to democratic, emancipatory education and the fight against inequalities T8. Genesis of the Teaching Area in Science/Mathematics Education and the role of CAPES in its emergence T9. Need to improve the evaluation of scientific production with specific instruments for the PPGs in the Area T11. Creation of the Science Teaching Area and incentives to search for professionals to improve basic education T17. Expansion of the area: growth of scientific production, graduate tracking, and professional performance

As for the dimension of object, the studies deal with the Teaching Area in terms of its historical trajectory, epistemology, and fields of action (T1, T8, T11); scientific production with a view to the development of public evaluation policies that are more sensitive to the specificities of the Area (T9); and the trajectory of graduates of a program of the Amazonian Network of Science and Mathematics Education, focusing on formative and professional impacts (T17).

Regarding the dimension of conceptions and meanings of the Teaching Area, the productions highlight its markedly interdisciplinary character. T1 describes the field as "fertile ground for diversity of thought", integrating researchers from diverse backgrounds and plural perspectives, which favors a broader investigative approach. The text also characterizes the Area as a privileged space for translational research, situated between basic science and its application in educational practice. In T8, the Teaching Area is conceived as a recent configuration of knowledge within the scope of CAPES, which seeks to differentiate itself from traditional research in Education. The study argues that its emergence results from historical and institutional processes that date back to initiatives to support teaching since the 1950s, which would have produced conditions of possibility for its autonomy as an area of specific evaluation. T9 argues that the Area has its own demands in public policies for scientific evaluation, requiring criteria that contemplate its social impact, intervention methodologies and relevance to basic education, requiring instruments that are more appropriate to the profile of its productions, which go beyond the scientific article and include educational products, didactic materials, reports and other forms of dissemination typical of applied areas. T11 and T17 emphasize the formative role of the Teaching Area, highlighting that the professional-researcher in the field needs to articulate the specific knowledge of the area of activity, pedagogical knowledge for teaching practice, methodological knowledge for research, and pedagogical knowledge of the content for didactic transposition, contributing to regional development, citizenship and improvement of educational practices.

In the dimension of methodological approach, the analyzed productions employ a variety of qualitative approaches, such as case studies (T1, T17), documentary analysis (T9, T11) and Foucauldian arche-genealogy (T8), which indicates the presence of diverse theoretical and epistemological perspectives within the Teaching Area. The results of these studies point to different constitutive factors of the field. T1 highlights the formative and social dimension of the Area, aligned with the promotion of emancipation and the practice of freedom in educational processes. T8 highlights its historical roots and the institutional conditions that enabled its emergence and autonomy, especially the role of CAPES, which, since the 1950s, has fostered teaching practices and projects in various areas of knowledge, creating a fertile ground for the subsequent consolidation of the Teaching Area, initially dissociated from the Education Area. T9 shows that, given the centrality of evaluation processes for the structuring of Brazilian postgraduate studies, serving as a focus for reflection and classificatory regulation for funding, the

instruments for evaluating scientific production would need to be improved to recognize the specificities of the work developed in the PPGs in Teaching. T11 and T17 reinforce the growth of the area, especially in terms of the demand for postgraduate training and the professional and academic insertion of its graduates.

In general, the analyzed documents converge in the understanding that the Teaching Area is in a process of consolidation, articulating multiple theoretical, methodological, and formative perspectives around the investigation and regulation of postgraduate teaching, configuring it as its own object of scientific research. The results indicate the expansion of the field, the growing institutionalization of the PPGs, the strengthening of research through the increase of scientific production and diversification of its themes and approaches, and the need to dynamize the current forms of evaluation to allow the Area, in its specificities, to be adequately accountable to society, to take reference in its demands, and to plan its development.

Courses and Programs in the Teaching Area: Dynamics, Challenges and Impacts in Postgraduate Education

The documents that focus on the Courses and Programs in the Teaching Area investigate aspects of the internal structure of the PPGs and the academic and social effects of their training processes, as shown in Figure 6, below.

Figure 6

Documents classified in Axis 2 - Courses and Programs

Dimension	Document contents
Object	T2. PPGs' profile and education T5. Formation of a network of PPGs T7. Inclusive education T10. Scientific dissemination T12. Graduate's profile and career T15. Overview and impact of professional master's degrees
Conceptions and meanings of the Teaching Area	T2. "(...) it trains 'teacher trainers'" (p. 5). T5. "(...) stands out for its singularity and uniqueness in the interdisciplinary approach" (p. 189). T7. "(...) allows citizens to act critically in the face of the challenges of contemporary society" (p. 65). T10. "(...) it is inserted in a sphere of high complexity, in which the construction of its limits and boundaries is marked by a process of reaffirmation of identity, especially after its separation from the area of Education at CAPES" (p. 63). T12. "(...) it has a history that is not yet properly explained and it is an area that requires research and studies involving the factors and dimensions of its constitution and institutionalization in the national context" (p. 46). T15. "(...) an area essentially of translational research" (p. 62).

Figure 6

Documents classified in Axis 2 - Courses and Programs (continuation)

Dimension	Document contents
Methodological approach	Qualitative T2. Desk research and questionnaire T5. Desk research and interview T7. State of the art T10. Document analysis Quantitative T12. Case study and scientometric bases T15. Desk research
Findings: possibilities, prospects and conclusions	T2. Fragility in the pedagogical training of postgraduate professors and gaps in evaluation. T5. Networking (*Rede-Ensino-PR*) as a strategy for collaboration, visibility and development of the Area T7. Teacher unpreparedness in inclusion and its impact on the quality of teaching and learning T10. Potential of science communication for formal/informal education and interdisciplinary collaboration T12. Significant social insertion of the Teaching PPGs: relevance and impact T15. Leadership in professional master's degrees, with lower scientific productivity and need for promotion/indicators

The dimension related to the objects of study addressed in this axis unfolds in different scales, worked according to the delimitation of the empirical context investigated. The works range from professional master's degrees in the Area, in general (T15), through multiple PPGs in the Area according to thematic framing (T2, T7, T10), through a specific network of PPGs (T5), up to a specific PPG (T12). The empirical outlines correspond to different purposes and results of knowledge in the exploration of the Teaching Area. There are studies that seek a broader view, considering the typical organizational forms of the Area as part of the SNPG: the professional master's degrees (T15) and the interinstitutional networks between programs (T5). Others view the PPGs in terms of their pedagogical projects and effects, addressing the training and profile of the PPGs in Teaching (T2) and the profile and career of graduates (T12). In addition, specific elements of postgraduate education are focused considering their formative functions, such as scientific dissemination (T10) and inclusive education (T7). This diversity indicates that a large part of the research focuses on the management and internal organization of the programs, reflecting concerns with institutional policies, training practices, and evaluation processes.

In terms of conceptions and meanings of the Teaching Area, the studies help to outline the strategic role of the Teaching Area in the SNPG by complementing the vision, still under construction, that it produces of itself. In T2, it is understood as a space for the training of "teacher trainers", emphasizing their commitment to the professional development of educators. T10 highlights the process of identity reaffirmation experienced by the Area after its separation from the Education Area, emphasizing the inherent complexity in the construction of its epistemological boundaries, pointing out that the multiplicity of components and references also represents a challenge for the visibility of transversal formative elements in the structure of the PPGs, as is the case of the contents about scientific dissemination.

T12 points out that the history of the Area still needs greater systematization, indicating the need for research that explains its bases, trajectories and modes of institutionalization. Interdisciplinarity emerges as a distinctive feature in T5 and T15, in which the Area is described as an articulator of different knowledges and as a space for translational research. The characterization of research in the field as having a translational nature, understood as a distinctive feature, had been mentioned in the Area Documents since 2013; however, it was removed from the document for the subsequent four-year period, 2025–2028 (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, 2025).

Another recurring element is the conception of the Area as a space that contributes to citizenship-building education. Although this is an intrinsic function of education as a whole, set up by the Law of Guidelines and Bases of National Education (LDB), the prominence it is given in the Teaching Area literature suggests that the SNPG still does not have it as a core feature to the point of being taken for granted, while at the same time evidencing the instituted value of this commitment in the scholarship discourse. For instance, T7 argues that the formative practices of postgraduate studies in Teaching should enable subjects to act critically in the face of contemporary social challenges. Despite the conceptual advances, the productions also reveal the difficulty of finding a unified definition of the Area. Studies suggest that it is configured much more by its interfaces and dialogues with other disciplines than by a clearly explained identity core.

Regarding the dimension of methodological approaches, the set of documents analyzed in this axis presents a plurality of strategies: qualitative, with the use of documentary research (T2, T10), questionnaires (T2), interviews (T5), and state of the art (T7); and quantitative, in studies using scientometric databases (T12) and document analyses guided by numerical data (T15). This methodological diversity highlights the multiplicity of perspectives that make up the Teaching Area. In the results dimension, the studies contribute to understanding the dynamics and challenges of the PPGs in the Area. T2 points to the lack of integration in legislation and the belief in the technical domain as sufficient for teaching, which results in gaps in the pedagogical training of professors in postgraduate courses. T7 contextualizes CAPES' incentive to the consolidation of the Teaching Area in the context of the relationship between public policies and the

development of PPGs, but points out that, despite normative advances, professors are still unprepared to deal with inclusion practices. T10 highlights that scientific dissemination is a strategic practice for the Area, as it expands the reach of the knowledge produced, fosters formal and informal education, and stimulates interdisciplinary collaboration, but still poorly structured in the SNPG. T5 highlights the importance of the creation of interinstitutional networks as a strategy for strengthening, visibility, and collaboration among PPGs. T12 shows that the PPGs in the Teaching Area have a strong social insertion, reinforcing their relevance for regional development. T15 reveals that while the Area concentrates the largest number of professional master's programs in Brazil, this modality has lower scientific productivity than academic master's degrees, leading to the need for specific evaluative indicators and policies fit to the Area's purpose to train people working in non-academic spaces.

The context in which the Area's PPGs operate is thus marked by a tension between a search to promote the enhancement of teaching in different organizations and the discontinuities related to the rigidity of the SNPG and academic traditions. Elements that are seen as strengths of the Area, such as its connection with non-academic spaces, the dimension of professional master's degrees among the courses offered, and the link to teacher training correspond to traits that move away from the elements that were historically established as the basis for prestige and appreciation in the SNPG, related to a disciplinary science. At the same time, innovations that the area has proposed, such as networking, are also challenges because they raise new questions for which there are no answers codified in the bureaucratic structures of the SNPG.

Scholarly Output: Themes, Methodologies and Trends

The corpus of this axis allows us to understand how the field has investigated its own scholarly output, its theoretical references, emerging themes, methodologies, and formative impacts.

The diversity of interests is significant, so that, as shown in Figure 7 below, the analysis of the works led to organizing the dimension of the objects under study in this axis into three categories, which structure the understanding of the trends present in scholarly output: methodology of academic production; teaching approaches; production profiles among programs and graduates.

Figure 7

Documents classified on Axis 3 – Scholarly Output

Dimension	Document contents
Object	Methodology of academic production T3: Improvement of the Validation Form for Educational/Technical-Technological Products (PE/PTT) T6: Relationship between anti-plagiarism policies and the relevance of publications T14: Theses and dissertations in the area of Science and Mathematics Teaching T16: Research methodologies in the area of Science Teaching T21: Development of pedagogically accessible educational products T24: Studies on evaluation in Science Teaching in Brazilian scholarship Teaching approaches T18: Analysis of the concept of "body" in scholarship in the area of Teaching T19: Analysis of scientific publication on literacy and scientific literacy T20: Analysis of academic production on "drug education" T22: Scholarship on scientific literacy in primary education T23: Analysis of the theoretical bases of research on innovation in Science Education Production profiles among programs and graduates T4: Study of scholarly output and the profile of PPGs T13: Academic profile of applicants to PPGs
Conceptions and meanings of the Teaching Area	T3. Space for discussion on professional postgraduate studies committed to standardizing evaluation processes T4, T6, T14, T16, T18, T21, T23. Growing area that has been consolidating itself in Brazil as a field of scientific knowledge T19, T20, T23. Institutional player of a social and political role focused on transforming the Brazilian educational reality
Methodological approach	Qualitative T3, T16. Literature review and document analysis T19, T21, T22, T23. Literature review T4, T6, T13, T14, T18, T20, T21 Document analysis

Figure 7

Documents classified on Axis 3 – Scholarly Output (continuation)

Dimension	Document contents
Findings: possibilities, prospects and conclusions	T3. Standardization of the evaluation of Educational/Technical-Technological Products for accuracy and homogeneity
	T4. High production in Science Education, with challenges in systematization and dissemination
	T6. Few institutional actions against plagiarism, with individualized responsibility
	T13. Genesis of the Area and professional master's alignment with research in teaching-learning
	T14. Concern with scientific learning and methodological diversification in the classroom
	T16. Understanding of the methodological identity, instruments, and research trends in the Teaching Area
	T18. Little exploration of the theme "body" in research in Teaching, despite its relevance to learning
	T19. PPGs in Teaching and Sciences with potential to transform teaching-learning and curriculum policies
	T20. Increase in publications on drugs in the Teaching Area: preventionist/political-pedagogical approaches
	T21. Educational Products as fundamental contributions for the quality of education, arising from research by PPGs
	T22. Science Education in search for problematizing, critical, and emancipatory perspectives
	T23. Prevalence of neoproductivist logic in educational research
	T24. Evaluation as awareness of educational action and its importance in the school system

The first category, methodology of academic production, brings together studies dedicated to the investigation of techniques and procedures used in academic research in the Area. The themes vary in their scope: attempts to construct guidelines, either in terms of suggestions for the instruments used in the evaluation of the Area (T3), or contributing to institutional policies (T6); detection of thematic (T14) and methodological (T16) trends in the Area's work; and systematization of work with attention to specific components of the pedagogical process, accessible educational products (T21) and evaluation in Science Teaching (T24). These productions show a recurrent concern of the Area in analyzing its own production, in order to know its repertoire and qualify investigative and formative processes. The highlighted themes are strongly associated with the didactic dimension of Teaching, often linked to professional master's degrees. In addition, the purpose of gathering this information seems to be linked to the constant negotiation of the Area's position in the SNPG, which requires movements of epistemological consolidation.

The second category, teaching approaches, concentrates studies that investigate the presence of themes and concepts central to educational practices in the productions of dissertations and theses in the Area. These works analyze how different theoretical perspectives dialogue with the teaching and learning processes, reinforcing the critical, social, and interdisciplinary character of the Teaching Area. The diversity of focuses points to an elasticity in the topics that the Area allows itself to address and approaches to which it resorts to build its didactic framework, eminently linked to professional performance in teaching.

The third category, profiles of production among programs and graduates, includes works that deal with the profile of programs and their out (T4) and the academic profile of applicants and graduates of PPGs in the Area (T13). Such analyses make it possible to map trajectories, institutional impacts, and formative characteristics of the PPGs, contributing to the understanding of the professional and academic insertion of graduates.

As for the dimension of conceptions and meanings of the Teaching Area, the documents present some recurrences. The Teaching Area is seen as a field in expansion and national consolidation, being positioned as an emerging scientific area (T4, T6, T14, T16, T18, T21, T24). It plays a strategic social and political role, with the potential to transform educational practices and break with traditional paradigms of research, teaching and learning (T19, T20, T23), prompting the work with diverse theoretical currents and cultural sensitivity. It is also recognized as a central space for discussion of professional postgraduate studies, especially regarding the evaluation and standardization of educational products (T3). As for methodological approaches, this axis is composed of qualitative works identifying as literature review (T1, T16), bibliographic review (T19, T21, T22, T23), and documentary analysis (T4, T6, T13, T14, T18, T20, T24).

Finally, in the dimension of results, the understanding of the Teaching Area about itself can be perceived to evolve in different aspects. First, it is possible to see the reading that the Area itself traces of its role in the SNPG: linked to teaching-learning issues (T13), with the need to systematically structure and disseminate the knowledge it produces (T4), especially in terms of products traditionally undervalued by the CAPES evaluation and that need to be defended as a resource of legitimacy (T3). From this identification with the teaching-learning processes, there is also a concern with updating in terms of research methodologies and innovative pedagogical practices (T14, T20), among which evaluation stands out for its potential to raise awareness of educational action (T24). Attention is also paid to the contents, methodological (T16) or thematic (T18), in which the Area can represent a distinctive contribution, affirming its space in the SNPG. Finally, there is a concern, in a young and diverse area, to organize ethical principles and propose their reinforcement, in order to promote a critical, emancipatory education committed to social and political issues (T22). In this sense, the alerts apply to two levels. First, rules of procedure in the verification of the contents presented, pointing out weaknesses in the implementation of policies to combat plagiarism in

institutions, with ethical responsibility often delegated to units and individuals (T6). Second, fundamentals of scientific action, cautioning against research that reproduces extractivist and neo-productivist logics (T23).

In general, the documents in this axis converge in the characterization of a field in accelerated growth, which concentrates a large part of its investigations on the improvement of teaching, research and training practices, demonstrates a strong commitment to social and political issues, but still faces challenges of systematization and visibility. The studies point to the need for greater thematic diversification—especially around the body, subjectivities, and sensitive dimensions of learning—, for more appropriate indicators to evaluate the output of professional master's degrees—in particular educational products—, and for strengthening methodological identity and scientific ethics.

Discussion: Connecting the Three Analytical Axes

The articulation of the three axes analyzed—Teaching Area, Courses and Programs, and Academic Productions—allows an integrated understanding of how the Teaching Area is structured and consolidated in Brazilian postgraduate education. The findings dialogue with authors who have been discussing its constitution as an interdisciplinary delimitation of the scientific field, in continuous expansion.

The studies of the first axis, on the Teaching Area itself, reveal an identity marked by plurality and heterogeneity, characteristics already widely discussed in the literature (Nardi, 2016; Carvalho, 2004) and manifest in the difficulty of framing the identity of the field. This fluidity of boundaries is compatible with areas that articulate pedagogical, epistemological, and disciplinary knowledge (Mortimer & Scott, 2002). The Area is configured as a specific object of scientific research, differentiating itself from the Area of Education, a process fostered by CAPES since the 1950s and explained in area documents (T8; Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, 2025). Interdisciplinarity emerges as a distinctive feature (T5; T15), articulating different knowledges. In this sense, a frontier for the advancement of the Area in its current state is the definition of quality criteria for the knowledge produced in its PPGs.

In addition, the identity of the Teaching Area seems to value a social and formative commitment. There is a recurrent conception of the Area as a space that contributes to citizenship education and emancipation (T1; T7), encouraging critical action in the face of social challenges. This emphasis, although intrinsic to Brazilian education (LDB), highlights the value instituted by this commitment in the discourse of the countryside. The search for a problematizing, critical and emancipatory science education, which recognizes science as a human and fallible activity (T22), reinforces this engaged identity. The very discussion about the translational character of its research, present in previous CAPES documents and later suppressed, points to a continuous reflection on the nature and impact of its production. This type of result raises the question of how much the works produced in the PPGs themselves communicate with the policies of the Area and vice versa, in order to identify strategies for advocacy in society.

In the second axis, referring to courses and programs, the growth of the Teaching Area dialogues with analyses already consolidated in studies on postgraduate education in Brazil (Cyrino et al., 2023). The strong presence of professional master's degrees in the Area (T15), is also supported by the literature that values the dialogue between academic research and teaching practice (Gatti, 2014; Pereira & Rôças, 2023). However, the Area still struggles with the challenge of pedagogical training of higher education professors, evidenced in works such as T12, as well as with the difficulty of enforcing the uniqueness of educational and technical-technological products. In view of this situation, a convergence regarding the translational component of the Area's identity would favor directing the production of applied knowledge, characteristic of research in Teaching, to strengthen the institutional capacities of the PPGs. Furthermore, regional inequalities appear indirectly, diluted in specific case studies or in localized cuts, lacking research that explicitly takes the regional distribution of PPGs, themes and impacts as an object of analysis.

The third axis, dedicated to scholarly output, corroborates a picture already outlined in the literature on production in Science Teaching, which points to advances in themes such as scientific literacy, pedagogical innovation, and teacher training. However, the findings of this review, especially in T4 and T22, reaffirm that this production still lacks further systematization and methodological consolidation. In this sense, the fact that few studies directly problematize the quality of the Area's production raises the discussion as to the epistemological and methodological criteria that can support the evaluation of the content produced by its PPGs. Quality appears more as a presupposition—associated with the declared commitment to improvements in national education—or an attribute extrinsically verified in alignment with the requirements of regulatory evaluation.

The centrality of the social and political role of the Teaching Area, already discussed in the literature from the perspective of critical and emancipatory scientific education (Santos, 2008), is strongly evidenced in the findings of this review, particularly in T19, T20 and T23. By investing in research on sensitive topics such as drugs, inclusion, or science and society, the Area demonstrates its ability to act as a critical and socially referenced field, promoting the transformation of teaching-learning and the disruption of curricular paradigms. However, although some studies mention social, regional, or formative impacts, there are few analyses that measure or qualify them in depth, which limits the understanding of how the production of the Area has a concrete impact on educational policies, curricula, and practices.

By integrating the three axes, a clear movement can be observed: the Teaching Area presents significant advances in the production of knowledge, in the training of researchers, and in the consolidation of its PPGs. However, these advances occur simultaneously with the confrontation of epistemological, methodological, and institutional challenges. This scenario is consistent with what recent literature points to emerging areas in the SNPG, which tend to grow rapidly, but face tensions inherent to the search for scientific legitimacy (Leite & Polidori, 2021; Mesquita et al., 2023).

In summary, the analyzed documents, published between 2000 and 2024, reveal that the identity of the Teaching Area is built amid a rich plurality and interdisciplinarity, although still in search of greater epistemological delimitation. Its potential lies in its ability to generate relevant knowledge, train researchers and qualified professionals, promote social inclusion, and impact basic and higher education. However, the Area faces persistent challenges, especially in terms of systematization of production, adequacy of evaluation processes, and continuous enhancement of professional development and institutional practices. From this study, visible weaknesses of the Teaching Area that can be considered central issues to be faced are: the lack of standards and assessment of the intrinsic quality of its outputs, in its multiple dimensions; the unclear relationship between academic and professional modalities; the role of translational research; institutional and regional inequalities; the undefined boundaries between its subareas; and the need to clearly operationalize interdisciplinarity in research and training practices. Thus, the discussion shows that the strengthening of the Teaching Area depends on simultaneous efforts on different fronts: deepening the definition of its own identity; consolidating the methodologies that it considers typical and innovative; expanding scientific dissemination processes and formats, structured in a systematic way; improving of ethical training in the PPGs, with sensitivity to the issues of professional insertion in teaching-learning; strengthening collaborative networks; and designing evaluation policies aligned with the specificities of the Area. The gaps between weaknesses and needs for strengthening indicate possible future research agendas that can contribute to the evolution of the Area.

Conclusions

The present study aimed to analyze the scholarship on the Teaching Area in the context of Brazilian postgraduate education, in the period from 2000 to 2024, focusing on its identity, potentialities, and challenges. From the organization of the results in three axes—Teaching Area, Courses and Programs, and Scholarly Output—it was possible to show how the Area has been characterized, the spaces in which it is affirmed, and the tensions that cross its consolidation in the SNPG.

The results show that the Teaching Area has advanced significantly, especially in discussions about the training of qualified teachers and researchers, the evaluation of scientific production, the dynamics of internal organization of the PPGs, and the social impact of research. The publications demonstrate a growing concern with the expansion of the visibility of the Area, the creation of collaborative networks, and the consolidation of practices and policies that strengthen the PPGs. This movement is indicative of a field that seeks to assert itself institutionally, while recognizing itself as a strategic space for teacher professional development and to produce knowledge that outreaches basic and higher education, one of its main potentialities. At the same time, in an expanding Area, the way diversification develops in a country marked by geospatial inequalities, which tend to be reproduced in asymmetric relationships between PPGs, seems to be a point of attention.

However, this study also reveals that the Teaching Area still faces important challenges in the process of constitution and delimitation of its epistemological identity. The analyzed studies indicate that it is much more characterized by its interfaces—with Education, Science, Mathematics, Health, among others—than by a clearly established conceptual core. This frontier condition, although one of the assets of the Area, also brings tensions and uncertainties that impact both academic production and institutional practices in the PPGs. The very discussion about the translational character of research, present in previous CAPES documents and later suppressed, evidences this search for an identity that differentiates its production from traditional research.

The analyses of courses and programs indicate that, despite the expansion and relevance of the Teaching Area, weaknesses persist related to the integration between institutional policies and the growing needs for improvement of training practices. The belief in the technical domain as sufficient for teaching, without the proper pedagogical training, is a challenge. The reviewed studies also show that professional master's degrees, however having a robust presence in the Area and playing increasingly strong part in the SNPG, still demand their own evaluative indicators and more consistent systematization processes, especially for valuating educational and technical-technological products, such as didactic guides, educational software, intervention reports, or prototypes of didactic materials. In this regard, it is noteworthy that the literature in the Area rarely mobilizes more systematic indicators to qualify or compare them in regional, institutional, or thematic terms.

The overview of the Area's scholarly output shows it has focused on varied and socially relevant themes, such as scientific literacy, drug education, innovation in science teaching, accessibility issues, and the role of the body in educational practices. However, they also show important gaps, especially in terms of systematization and dissemination of the research produced, thematic diversification, and strengthening of the methodological identity of the Area.

This study demonstrates that the Teaching Area has been consolidating itself as a space for critical, interdisciplinary research committed to the transformation of the Brazilian educational reality. At the same time, it is evident that its strengthening depends on the advancement of epistemological debates, the expansion of evaluative indicators fit to its nature, the intensification of collaboration practices between PPGs, and the qualification of their formative and methodological practices. In summary, the literature review depicts an Area whose identity is still built amid multiple interfaces, which presents important formative, scientific, and social potentialities, but which faces epistemological, methodological, and institutional challenges that need to be faced for these potentialities to be fully realized.

Finally, it is important to recognize the limitations of this study, with a limited number of databases and a specific time frame, which may have left out other relevant contributions. For future endeavors, it is advisable to expand the searches to national databases, as well as to deepen qualitative analyses that explore in density the

epistemological, political, curricular, and methodological dimensions that structure the Teaching Area in the context of postgraduate pedagogy. It would be relevant to comparatively investigate the formation of inter-institutional networks in the Teaching Area, exploring whether this strategy of strengthening and collaboration manifests itself with greater intensity here than in other areas of postgraduate studies, and its specific impacts. Thus, this review contributes to broadening the understanding of the constitution, challenges, and potentialities of the Teaching Area, offering subsidies so that researchers, managers, and programs can strengthen and guide their future trajectory in the SNPG.

Authors' Contribution

Conceptualization: Braz, M. M.; **Formal analysis:** Miorando, B. S.; **Investigation:** Braz, M. M.; **Methodology:** Braz, M. M., Miorando, B. S.; **Validation:** Braz, M. M.; **Writing – original draft:**Braz, M. M.; **Writing – review & editing:** Braz, M. M., Miorando, B. S., Prata, R. V.

Data Availability Statement

All dataset were generated or analyzed in the current study.

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