



DOI: https://doi.org/10.18764/2178-2229v32n2e25691

# Continuing education and pedagogical practice of physical education teachers: a state of knowledge on methodological trends research and themes

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Abstract: Continuing Education (CE) and Pedagogical Practice (PP) of Physical Education teachers (PET) are correlated with teacher professional development and have become recurring research themes. To understand this context, this article aims to map and describe the methodological aspects and themes addressed in studies concerning CE and PP among PET, as well as reflect upon them. It adopts a State of Knowledge research approach, considering master's theses and doctoral dissertations published between 2014 and 2024, available in the Catalog of Theses and Dissertations of the Coordination for the Improvement of Higher Education Personnel (CAPES). Using ATLAS.ti software, a systematic dataset was constructed from the corpus of analysis, adhering to the State of Knowledge methodology, encompassing Annotated, Systematized, Categorized, and Propositive Bibliographies. These data reflect trends in scientific knowledge production within the analyzed period, contributing to the understanding of research directions and perspectives for future investigations. Findings predominantly indicate qualitative research approaches, characterized as descriptive and exploratory regarding their objectives. Concerning procedures, action research and case studies stand out, significantly involving PET as research collaborators. Considered transitional, these findings intersect with the perspective that CE serves as a propositive action underpinning research, while PP is analyzed as teaching action, addressing themes and approaches that interrogate school routines and teachers' practices, thereby enabling more focused and in-depth investigations that deepen specific questions within the context of school Physical Education.

**Keywords:** state of knowledge; continuing education; pedagogical practice; physical education; research.

#### 1 Introduction

Continuing Education (CE) and teachers' Pedagogical Practice (PP) represent a significant field of research, as they are closely linked to the demands arising from social, economic, cultural, and educational transformations. These changes challenge education systems, schools, and teachers to engage in a continuous process of reflection and re-signification of their practices in response to the emerging demands of contemporary society.



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In this context, teachers' CE can be understood as an intentional, relational, and continuous process capable of promoting both theoretical and practical learning that supports the development of pedagogical practice, professional identity, and professional growth. In turn, PP can be conceived as a set of intentional and dynamic actions that integrate theory and practice within teaching. It involves teaching strategies, methodologies, planning, assessment, and the multiple interactions and actions that teachers engage in on a daily basis, with the aim of enhancing the teaching and learning process.

These processes establish connections with teachers' professional development, professional identity, and professionalization (Nóvoa, 1991, 1995, 2009, 2023), with the theoretical and epistemological dimensions of teachers' actions (Imbernón, 2010, 2011), as well as with public and educational policies (Gatti, 2008, 2010, 2016; Gatti & Barreto, 2009; Gatti et al., 2019). Therefore, they can be conceived as spaces for the construction of learning and knowledge, thereby constituting a field of research (Charlot, 2006).

In the context of school Physical Education (PE), the interconnections between CE and PP are linked to broader discussions that address fundamental issues in education as well as the specificities of this field. These interconnections have been increasingly consolidated as important actions both for teachers' professional development and for strengthening the field, considering the complexity involved.

In this context, we observe that the production of the State of Knowledge has emerged as a valuable approach for understanding how the various connections and interweavings between CE and pedagogical practice of physical education teachers have been addressed. Studies such as those by Bagatini and Souza (2019), Batista et al. (2015), Bonfim, Silva, and Miranda (2016), Freitas et al. (2016), Valle and Ferreira (2024a), and Valle and Rezer (2022) have sought to understand how these themes have been constituted as objects of research in different sources of knowledge production and dissemination. These sources are understood as constructions that portray the current state of academic production within the time frames analyzed (Ferreira, 2002, 2021), as we aim to do in this article.

Thus, the State of Knowledge broadens the scope of specific aspects, establishing itself as an important methodological tool for consolidating existing knowledge, identifying gaps and weaknesses in the literature, and outlining trends and

advances that may contribute to further research. By engaging with contemporary demands, it supports the production of scientific knowledge.

The development of this State of Knowledge constituted an essential component of a broader doctoral study. The dissertation in question investigates whether the CE processes promoted by the Department of Education of the state of Santa Catarina (SC) have contributed to fostering the re-signification of the pedagogical practice of physical education teachers in the state school system. By mapping methodological aspects and themes present in master's and doctoral theses in the field, this State of Knowledge aimed to identify gaps and perspectives that remain unexplored. In addition to aligning directly with the objectives of the doctoral research, the State of Knowledge may contribute to the advancement of the field of school PE, as well as to the strengthening of CE and PP as subjects of educational research.

The guiding research question of this State of Knowledge was: What methodological aspects and themes are addressed in master's and doctoral theses on CE and pedagogical practice of physical education teachers produced between 2014 and 2024? This time frame was strategically chosen to encompass the most recent trends in the field, covering both current academic output and the development of the doctoral research itself. It thus enables an understanding of how these topics have been addressed and what gaps remain. The choice to analyze theses and dissertations is justified by the need to understand the dynamics of scientific knowledge production within stricto sensu graduate programs, thereby serving as a foundation for the doctoral study. Accordingly, the objective of this State of Knowledge is to map and describe the methodological aspects and themes addressed in academic productions, contributing both to educational research and to the recognition and strengthening of school PE as a field of investigation.

This article is structured as follows: in addition to this introduction, we present the methodology used for the State of Knowledge, ensuring its replicability, followed by the presentation and discussion of the data. Finally, we present the concluding remarks, which synthesize the findings and their implications for the educational field and for school Physical Education.

## 2 Methodology

As a result of the growing scientific production observed in Brazil (André, 2001; Gatti, 2001; Severino, 2009; Vosgerau; Romanowski, 2014), there is an increasing demand for researchers to design studies that explore specific and unique issues, contributing to investigations that expand and enhance academic discussions and the production of scientific knowledge. In this context, one of the challenges faced by graduate programs and researchers is to develop studies that address existing gaps on a given topic, combining scientific rigor and quality in order to strengthen the advancement of science (André, 2001).

This is made possible through research known as State of Knowledge studies (Ferreira, 2002, 2021; Morosini, Kohls-Santos; Bittencourt, 2021; Morosini, Nascimento; Nez, 2021), which make it possible to identify movements, trends, themes, and methodological aspects related to research intentions. In this regard, the construction of this State of Knowledge followed the steps proposed by Morosini, Nascimento; Nez (2021), as well as the methodology presented by Morosini, Kohls-Santos; Bittencourt (2021). Chart 1 below details the process undertaken.

Chart 1 - Steps for constructing the State of Knowledge

Steps for constructing the SA	Actions carried out by researchers
Selection of search sources	We chose to perform an advanced search for master's theses and doctoral dissertations using the Theses and Dissertations Catalog available on the Portal of the Coordination for the Improvement of Higher Education Personnel (CAPES) <sup>1</sup> , as it encompasses the academic production of Brazilian postgraduate programs (PPGs). The choice of theses and dissertations is justified by the necessity of understanding research developments at master's and doctoral levels, as these are considered relevant sources of knowledge produced through academic research.
Selection of descriptors	For the searches, we utilized the descriptors "continuing education" AND "physical education" as well as "pedagogical practice" AND "physical education," defined based on the research problem. Searches were performed separately for each descriptor set, always using quotation marks and the Boolean operator AND in uppercase.
Organization of the analysis corpus	For constructing this State of Knowledge, we used academic scientific productions (theses and dissertations), analyzed collectively and aligned with the proposed objective. During the research and selection process, we applied the following filters: 'Type' – Theses and Dissertations, and 'Year of defense' – 2014 to 2024. The time frame was predefined based on the understanding that this period includes a significant volume of academic productions, enabling an overview of recent methodological choices and researched themes. This allowed for a broader understanding of

<sup>&</sup>lt;sup>1</sup>The search in CAPES' Theses and Dissertations Portal was conducted on January 13, 2025.

	discussions, considering theses and dissertations usually dialogue with prior studies, thus aligning closely with the temporal scope of doctoral research. Additionally, changes in the educational context, such as educational guidelines, the Common National Curriculum Base (BNCC), the implementation of the new high school, and curricular reorganizations, have prompted debates regarding CE and PP of teachers.			
Exploratory reading of findings	Based on the findings, we organized and systematized all titles and abstracts. Subsequently, an exploratory reading of all gathered information was carried out to enhance familiarity with the material.			
Selection of findings	For selecting the analysis corpus, inclusion and exclusion criteria were established. Inclusion criteria were: a) containing, in the title or keywords, descriptors 'continuing education' or 'pedagogical practice' and, obligatorily, 'physical education'; b) the theme being directly related to CE and PP of PE teachers; c) being a thesis or dissertation produced, defended, and published between 2014 and 2024; and d) having the abstract available on CAPES' Theses and Dissertations Portal. Exclusion criteria were: a) not containing one of the descriptors (continuing education or pedagogical practice) and the obligatory descriptor 'physical education'; b) the theme not being directly related to CE and PP of PE teachers; c) being a thesis or dissertation produced, defended, and published before 2014 and after 2024; and d) absence of the abstract on CAPES' Theses and Dissertations Portal.			
Identification and selection of analysis corpus	To compose this study's analysis corpus, we selected theses and dissertations meeting the defined inclusion criteria. For this purpose, the abstracts of theses and dissertations available on CAPES' Theses and Dissertations Portal were analyzed.			
Analysis and organization of sources	Considering the amount of production available for analysis, ATLAS.ti software was utilized as a resource to organize and identify the data. This process was based on the SA construction methodology proposed by Morosini, Kohls-Santos, and Bittencourt (2021), involving Annotated, Systematized, and Categorized Bibliographies. At this stage, codes were assigned to each methodological aspect and theme identified in the productions, which were subsequently categorized. This facilitated compiling a set of information responding to the objective and problem of this State of Knowledge. The data analysis, in turn, involved interpretative, critical, and reflective analysis by the researcher.			
Preparation of considerations about the field and research theme	From the identified data, descriptive and interpretative analyses were conducted.			

Source: The authors (2025).

Based on the steps and actions described in Chart 1, Table 1 below presents the results from the association of descriptors obtained by applying the selected filters.

Table 1 - Results of the association between descriptors

Descriptors	Total productions –CAPES  Database
"Continuing education" AND "physical education"	194
"Pedagogical practice" AND "physical education"	686

Source: The authors (2025).

An important aspect to highlight in Table 1 is the number of productions found using each search strategy and the different descriptors employed. A greater number of studies related to the PP of Physical Education teachers was observed. Considering the analyzed time frame, we identified the distribution of these productions over the past years, as shown in Graph 1 below.

Historical production of theses and dissertations in the 2014-2024 time frame - CAPES

80 - CONTINUING EDUCATION PEDAGOGICAL PRACTICE

70 - 60 - 30 - 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

Graph 1 - Historical evolution of academic productions on continuing education and pedagogical practice in relation to Physical Education

Source: The authors (2025).

The historical evolution of thesis and dissertation production, as shown in Graph 1, reveals that studies on CE of Physical Education teachers maintained a steady trend throughout the analyzed period, while studies on PP showed a gradual increase. Within this context, it can be considered that both themes remained present and relevant in the knowledge production within the field of Physical Education.

After applying the inclusion and exclusion criteria related to the objective of this research, we arrived at the analysis corpus, as detailed in Table 2. In addition to these criteria, we identified duplications between the two search strategies, which were excluded and reallocated to the production block with greater relevance.

Table 2 - Number of studies excluded from the count in each database

Descriptors	Initial count (CAPES)	Excluded (based on inclusion/exclusion and duplication criteria)	T. includ ed
"Continuing education"  AND "physical education"	194	111	83
"Pedagogical practice" AND "physical education"	686	568	118

Source: The authors (2025).

When analyzing the titles and selecting them based on the presence of the indicated descriptor, we identified significant associations made by the authors in their constructions. These associations refer, among other aspects, to related themes, the research contexts, and indicative subthemes related to CE, which resulted in a reduction in the number of studies, as detailed in Table 2. Thus, we arrived at a corpus composed of 201 productions, of which 83<sup>2</sup> address CE and 118<sup>3</sup> focus on the PP of Physical Education teachers.

Based on the corpus presented in Table 2, we proceeded to the most systematized phase of production analysis. This stage corresponds to the Annotated Bibliography, in which "[...] the documents found undergo a process of reading their abstracts, from which certain information is extracted, such as year of publication, author's name, research title, and full abstract" (Morosini; Kohls-Santos; Bittencourt, 2021, p. 62).

We emphasize that both the Annotated Bibliography and the Systematized Bibliography (Morosini; Kohls-Santos; Bittencourt, 2021) were conducted with the support of the ATLAS.ti<sup>4</sup> software, due to the large number of studies analyzed. Therefore, these processes occurred simultaneously, as for each stage a code was assigned corresponding to the aspects analyzed, as shown in Figure 1.

According to the State of Knowledge methodology, the Systematized Bibliography

[...] consists of the listing of theses/dissertations or articles based on the following items: objectives, methodology, and results. At this stage, a more directed and specific selection process begins, aligned with the purpose of constructing the State of Knowledge and other indicators, according to the object of study of the researcher (Morosini; Kohls-Santos; Bittencourt, 2021, p. 65).

Based on the systematization, we carried out the Categorized Bibliography, "[...] which refers to a more in-depth analysis of the content of the publications and

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<sup>&</sup>lt;sup>2</sup> Considering the extensive corpus of analysis, the objective and scope of this article, as well as the need to present the reported data in detail, we provide full access to this information at: <a href="https://drive.google.com/file/d/1HB8XIHaAKiWxWeSsmJnhf-IDfMmiovZ4/view?usp=drive\_link">https://drive.google.com/file/d/1HB8XIHaAKiWxWeSsmJnhf-IDfMmiovZ4/view?usp=drive\_link</a>.

<sup>&</sup>lt;sup>3</sup> Detailed information available at: <a href="https://drive.google.com/file/d/1HB8XIHaAKiWxWeSsmJnhf-lDfMmiovZ4/view?usp=drive-link">https://drive.google.com/file/d/1HB8XIHaAKiWxWeSsmJnhf-lDfMmiovZ4/view?usp=drive-link</a>.

<sup>&</sup>lt;sup>4</sup> ATLAS.ti is a software tool that supports qualitative data analysis. It can be used to code and analyze transcripts and field notes, conduct literature reviews, create network diagrams, visualize and organize data, and optimize the analytical process.

selections, of what we can call units of meaning, that is, keywords or themes representative of a set of publications" (Morosini, Kohls-Santos; Bittencourt, 2021, p. 67). At this stage of the State of Knowledge construction, we grouped the codes assigned to aspects related to the Annotated and Systematized Bibliography, from which the data analyzed through the Propositional Bibliography emerged.

In organizing the Annotated, Systematized, and Categorized Bibliographies, as exemplified in Figure 1, we coded all the methodological aspects and themes found in the abstracts of the studies. We then categorized them, thus forming the dataset that characterizes the productions and the analyzed context.

ESTADO DO CONHECIMENTO SOBRE FC - ATLAS.1: 0 th X Q ල්ගු 💨 🧓 0 80-WB -ESTADO DO CONHECIMENTO... Documentos (1) ▶ © Códigos (296) Memos (7) SIDADE ESTADUAL DO CEARA, Fortaleza Biblioteca ina Biblioteca estral Prof. Autonio Martins Filho titipação trata de uma formação continuada constituída por est autures tos componente curvincial Echacação Fisica na 18 asica. O objetivo foi analisir a relação entre o se atunutes no componente devincial Echacação Fisica na 18 asica. O objetivo foi analisir a relação entre o constituída de protessores de Echacação Fisica ública municipal de ensino de Pertaleza-UE e os atos de curvir efertavodos, subsidiados por uma formação continuada com foce şão da autoria docente. Para isso, realizon-se uma psequisava estrea de constituidado por uma formações en qualitativa, despidados por uma formações que apulha de composição de apulha de 2022 com otro porfessores de Esbacação Fisica en due sido a primeira, a fise exploratoria, consolidada polo envi esticulario virtual. Na sequiscia oconeram 15 encortros vitual subsidas semand afortadados em um encentro de planegiamento formativo. 10 encontros de intervenção tenaticos mediados per se convidados, frei encontros en que so participantes en esconadados, frei encontros en que so participantes en esconadados, frei encontros en que so participantes uma usas proposições curriculares com as devidas juntificativa desirbos obrea estejoa e organização dos conhecimentos e i desirbos entre estejoa e organização dos conhecimentos e i Redes (0) Crupos de Documentos (0) > P Grupos de Memos (1) Tipo: Pesquisa-ação (2) Grupos de Redes (0) 1 0 ... Q Pesquisar 🥠 📮 🤴 😲 🤚 🔞 🚾 Q

Figure 1 - Organization of the Annotated, Systematized, and Categorized Bibliographies of the studies analyzed using ATLAS.ti software

Source: The authors (2025).

According to the process presented in Figure 1, we highlight that one of the difficulties encountered in identifying the data — and consequently a weakness in the presentation of the analyzed abstracts — concerns the absence of certain information, such as the characterization of the research in terms of objectives, procedures, method or technique for data analysis, as well as the number of participants involved. This gap makes it difficult to more precisely map the analyzed data, as previously warned by André, Ens and Andrade (2003), Ferreira (2002), Romanowski and Ens (2006), Valle and Ferreira (2024b). This reinforces the need for greater rigor and structure in the

preparation of abstracts so that they effectively inform the overall production presented (André, 2001).

Nevertheless, we agree with Ferreira (2002) in highlighting that the analysis of abstracts tells the story of a production among many others that may serve as sources of research, which, in turn, are subject to limitations and weaknesses. In this regard, we consider the present study relevant and appropriate because, as the author notes, "[...] it is possible to read in each abstract and in the set of them other statements, other abstracts, other voices, and to perceive the presence of certain significant aspects of the debate on a given area of knowledge, in a given period" (Ferreira, 2002, p. 270). Like Ferreira (2002), we recognize that the State of Knowledge of a given theme will inevitably present limitations depending on the choices made by researchers. However, such limitations and weaknesses can be mitigated by the rigor adopted in the analytical and interpretative process of the data, in line with the study's proposed objective. Recognizing the interconnections between limitations and possibilities in understanding the academic production context over the analyzed period, we now present the interfaces of the methodological aspects of the identified studies.

Regarding these aspects and based on the interpretative analysis of the data, we highlight not only the lack of information in the abstracts analyzed but also the difficulty in presenting methodological data. Often, this information is referenced ambiguously, incompletely, or even inaccurately. Another observed difficulty concerns the description of the procedures carried out, which are sometimes mistakenly presented as the type of research when, in fact, they refer to the procedures used. We acknowledge, however, that the literature on classifications and characteristics of research (Amado, 2017; Gamboa, 2018; Gil, 2008) offers a diversity of possibilities that have been built and consolidated throughout history, which may justify the different ways of presenting such studies.

# 3 Methodological and Contextual Aspects of Research on Continuing Education and Pedagogical Practice of Physical Education Teachers

Considering the large set of dissertations and theses that comprise the corpus<sup>5</sup> of analysis in this study, we chose to present the most recurrent data among

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<sup>&</sup>lt;sup>5</sup> To ensure the accuracy of the analyzed data, their detailed presentation, and in accordance with the objectives of this State of Knowledge, as well as the rigor with which it was conducted, we inform that

the works, in order to provide an overview of the various methodological, contextual, and thematic aspects identified in the data mapping. In this regard, we initially highlight the contextual aspects of the dissertations and theses analyzed, emphasizing the graduate programs and the geographic regions in which they are located, with the aim of understanding the investigative movements related to the theme.

Based on the mapping and the categorized bibliography, it is possible to highlight that, within the analyzed time frame, the themes of CE and PP in PE were addressed in works from Master's programs in Education (56 studies), followed by Master's programs in Physical Education (39 studies), Doctoral programs in Education (14 studies), Professional Master's programs in Physical Education (14 studies), and Doctoral programs in Physical Education (10 studies). These data allow us to infer that CE and pedagogical practice of physical education teachers have been investigated across different stricto sensu graduate programs. This demonstrates the capillarity and relevance of these themes within the academic context, thus consolidating them as emerging areas of study.

Regarding the geographical distribution of the analyzed works, the Southeast region leads with 68 studies, followed by the South (58 studies) and the Northeast (38 studies). In terms of thematic distribution, we observed a balance between the South and Southeast regions, with the latter showing a predominance of studies on CE, while the former stood out for works on PP. It is important to note that the Southeast is the most densely populated region in Brazil and has a higher number of stricto sensu graduate programs compared to other regions, which may explain the greater volume of studies found.

The widespread distribution of graduate programs across various states and regions of Brazil allows us to affirm that the themes under discussion represent a shared concern across different contexts and, therefore, have constituted a relevant investigative space for producing knowledge aligned with social and educational needs. In this context, we proceed to analyze the methodological aspects of the selected studies. To this end, based on the annotated, systematized, and categorized bibliographies, we identified research approaches, data collection and analysis instruments, as well as the research participants and their numbers. Thus, within the

the quantitative data mapping can be accessed at: <a href="https://drive.google.com/file/d/1-kL-SpXxkorn9wj15bQx3IC-DyfuTr9A/view?usp=drive-link">https://drive.google.com/file/d/1-kL-SpXxkorn9wj15bQx3IC-DyfuTr9A/view?usp=drive-link</a>.

limits of the data identified, we chose to present the most recurring methodological aspects, while also reinforcing the notable absence of this information in many of the abstracts analyzed.

In terms of research characterization, most studies are classified as qualitative in terms of approach; with regard to objectives, they are characterized as exploratory and descriptive. In terms of procedures, the works can be defined as action research and case studies, with participation ranging from one to 20 collaborators, mostly Physical Education teachers and students.

These data suggest that the studies aim to address themes from a perspective that analyzes subjective issues, beliefs, and manifestations, enabling a broader understanding of the investigated phenomenon and allowing the identification of new and different variables. Generally, they are developed quantitatively in more restricted contexts, especially when considering the number of participants. This indicates interconnection and consistency between the objectives and the locus or context of investigation.

For data production, we identified that the most used instruments were the semi-structured interview (63 studies), followed by the questionnaire (57 studies), the interview (38), document analysis (36), field diary (31), and observation (27). Consequently, data analysis was primarily based on content analysis (46 studies), document analysis (15), and thematic analysis (11). The adopted procedures, interconnected with the approach and objectives of each study, showed great diversity, although sometimes they were similar, reflecting the same researcher action.

This diversity, despite the convergence, may be attributed to the theoretical framework adopted by the researcher when naming the study. The predominance of action research and case studies can be explained by the researchers' intentionality and by the themes addressed in their investigations. Moreover, the characteristics of these studies involve approaches that focus on the development and analysis of formative processes, as well as the exploration of issues related to movement and body culture, particularly when addressing PP. The prevalence of studies involving a small number of participants — a common feature of these types of research — also helps to clarify these methodological choices. Furthermore, the identified data align with theoretical contributions indicating that case studies are procedures that aid in understanding complex or individual social phenomena, requiring in-depth analysis,

rigor, systematization, and detailed descriptions of the actions undertaken (André, 2008; Lüdke; André, 1986; Triviños, 1987; Yin, 2010).

Similarly, action research is relevant and frequently advocated in the educational field because it enables the articulation of ontological aspects and research epistemology (Franco, 2005). It allows the articulation between theory and reflection on practice, involving the researcher and participants in building comprehensive discussions through interactional and dialogical processes, which are grounded in various forms of intervention and data production (Barbier, 2007; Thiollent, 2011; Tripp, 2005). In the field of PE, action research is an important possibility because it is based on a perspective of engaging researcher and participants in understanding the phenomena related to the object of study. This perspective is widely supported by Betti (2009), Bracht (2002), Rufino and Darido (2014).

Based on the data analyzed, we observed that PE teachers represent the largest group of participants in the identified studies. However, we also noted the involvement of other stakeholders, such as school administrators and pedagogical coordinators, particularly in studies that were closely connected to the educational environment. In studies with a broader scope — those that established connections with research objectives and adopted an approach focused on public policies related to CE or teaching conditions — we identified the participation of municipal education officials, supervisors of educational programs promoted by education departments, and coordinators of PE sectors linked to educational management bodies. Another relevant aspect observed in the analysis of participant groups was the significant involvement of students, especially in studies addressing the pedagogical practice of physical education teachers.

Regarding the use of interviews and questionnaires as the most frequent instruments, we highlight their alignment with the research approach and objectives, which enabled researchers to make the data production process more dynamic. The use of such instruments in the human and social sciences is common because it allows the exploration of distinct themes and universes, particularly through interviews, which deepen themes based on a predefined script of questions (Duarte, 2002; Flick, 2013; Gil, 2008; Manzini, 2012; Minayo, 2013; Oliveira, Guimarães, Ferreira, 2023; Triviños, 1987), being among the most used tools in theses and dissertations in the field of education (Manzini, 2012).

Consequently, we found that the data analysis and interpretation process was mostly based on content analysis, thematic content analysis, and document analysis, followed by thematic analysis. We highlight that content analysis is one of the most frequently used techniques in educational research due to its methodological scope and the systematic and organizational structure it offers (Oliveira, 2003; Mendes; Miskulin, 2017; Sousa; Santos, 2020). This technique is also widely disseminated for "[...] being a very effective way to understand contents that are not always explicitly stated in a discourse (be it a text, a gesture, or the enunciation of a sentence — that is, any form of communication" (Valle; Ferreira, 2024b, p. 2) and for its relevance and applicability in research in the field of PE (Souza Júnior; Melo; Santiago, 2010).

Another aspect identified in the analyses was the use of software to support data analysis. The use of software in data analysis has become an increasing trend due to the practicality it offers in qualitative data analysis, especially when there is a large volume of information to process. Among the most used tools, Iramuteq<sup>6</sup>, NVivo11<sup>7</sup>, and SPSS 21<sup>8</sup> stood out.

### 4 CE and PP of PE Teachers: themes and approaches

Establishing connections with the methodological pathways, the construction of this State of Knowledge, in line with its objective, includes the mapping of themes addressed and correlated with CE and pedagogical practice of physical education teachers within the analyzed time frame. Figures 2 and 3 below present the set of themes identified through the analysis of titles and objectives, as well as from the information available in the abstracts of the selected works. The construction of the word cloud and the thematic presentation illustrate what has been investigated about

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<sup>&</sup>lt;sup>6</sup> It is a software acquired through the purchase of a license, offering a range of functionalities that support the qualitative analysis of textual, graphic, audio, and video data. It enables the organization and systematization of a broad set of data to be analyzed, allowing for its coding and categorization, which facilitates further actions such as the construction of networks to represent the data.

<sup>&</sup>lt;sup>7</sup> It is a free software that offers a wide range of tools for qualitative data analysis based on textual statistics and automatic text processing.

<sup>&</sup>lt;sup>8</sup> SPSS (Statistical Package for the Social Sciences) is a software for statistical analysis and data processing that enables the generation of relative and absolute frequency descriptions, as well as the application of inferential techniques for data analysis.

CE and pedagogical practice of physical education teachers and allow us to observe what has stood out within the broad repertoire of possibilities for and about research on these two major topics.

Figure 2 presents an extensive set of themes related to the CE of PE teachers. Among these themes, we highlight those most frequently identified in the analysis process, indicating the issues that have gained prominence in research: (i) CE processes; (ii) inclusion; (iii) early childhood education; (iv) physical education; and (v) inclusion of students with disabilities. The mapped data reveal a multiplicity of themes and subthemes associated with CE, addressing contemporary and relevant educational issues such as inclusion, digital technologies, the National Common Curricular Base (BNCC), as well as specific topics within the field of PE.

Formação continuada virtualFormação continuada colaborativa rormação continuada entre pares Impacto da formação continuada na prática pedagógica Ensino médio integrado
Concepções e significações atribuidos aos processos de formação continuada
Tecnologias da informação e comunida Formação humana e formação docente Tecnologias da informação e comunicação Formação EAD Formação continuada como política pública Ensino da saúde na escola Formação continuada on-line Inteligências múltiplas Processos de formação continuada on-line Inteligências múltiplas Iniciais Coordenação nedavárica de esporte Desafios da educação e a RNCC onos iniciais Coordenação pedagógica de esporte Desafios da Plano de emsino individualizado Dança Formação em Serviço Desafios da educação e a BNCC
SerViço

Tecnologias digitais Curso híbrido Cultura digital Inclusão de alunos com deficiência Educação para a saúde Relação entre a formação continuada e a prática pedagógica Implementação do currículo da educação física

Programa Moras de Estudo

Planejamento coletivo gos producios por composições por composições producidos pr Contribuições da formação continuada para a prática pedagógica Estratégias formativas Desenvolvimento profissional docente

Inclusão Prevenção à obesidade Discurso profissional de educação física Programa de esporte na educação integral en tempo integral da Programa de esporte na educação integral e tempo integral e Educação física se esporte na educação integral e tempo integral e Educação física trajetoria profissional de educação física se profissio Implicações ideo-políticas nos processos de formação continuada Cotidiano escolar

Figure 2 - Word cloud of themes identified and related to the CE of PE teachers

Source: The authors (2025).

The most prominent themes in Figure 2 reflect the authors' interest in understanding the dynamics, models, and strategies involved in the development of CE processes, carried out across different spaces and timeframes, and through various interfaces — whether due to their relevance or the need for enhancement. The CE addressed in the dissertations and theses analyzed in this study is presented as a constitutive process, a potential mechanism for generating change and expanding new possibilities for thinking, rethinking, and re-signifying teaching practice, thereby fostering professional development and mobilizing other forms of professional knowledge.

The data collected reveal that the focus of the studies lies in analyzing and understanding how the training processes developed by researchers are perceived by teachers. The concept and epistemological framework of CE have not been central to the debate, which highlights the importance of engaging teachers in a discussion about what they understand by CE, rather than merely analyzing the processes developed. After all, what do teachers understand as CE? What are their professional development needs?

These and many other questions related to CE processes seem to remain in the background in the discussions of the studies analyzed. However, we recognize that they are essential for designing, proposing, and developing CE programs and projects that are aligned with teachers' professional development. We believe that by bringing these new questions into the debate, we can advance the construction of new training projects, narrowing the gap between the proposed initiatives and the actual needs of teachers and schools. Nevertheless, we consider that the studies involving the pedagogical practice of physical education teachers have addressed a robust set of other related topics. Figure 3 presents a word cloud offering a visual systematization of the frequency distribution of themes related to PP and PE.

The themes that have guided and supported investigations from different academic perspectives address emerging issues that are part of everyday school life, while also reflecting the specificities of the field of PE in its various possibilities for intervention. Thus, we understand that the identification of these themes through the State of Knowledge constitutes an essential exercise that supports the understanding of the research already conducted, highlighting its complexity and scope.

With regard to studies addressing the pedagogical practice of physical education teachers, we observed a broad set of themes, as represented in Figure 3.

Figure 3 - Word cloud of themes identified and related to the pedagogical practice of physical education teachers



Source: The authors (2025).

Notably, the recurring themes in the studies analyzed, as shown in Figure 3, include: (i) PE in early childhood education; (ii) gender issues; (iii) the inclusion of students with disabilities; and (iv) ethnic-racial relations. In addition to these themes, the data indicate that topics related to the BNCC, PE content, and curriculum have gained prominence in the studies, which may reflect public policies and curricular reorganizations resulting from the implementation of the BNCC (Brazil, 2018).

The analyses of the themes listed in Figure 3 also reveal the prominence of issues related to PE in the ENEM, transdisciplinary pedagogical practice, inclusive education practice, and digital technologies in the pedagogical practices of PE teachers. Furthermore, a noteworthy aspect of the studies is the direct association of pedagogical practice as an action of the teacher and its developments, establishing connections with more specific subthemes and thus granting it centrality in the discussions. Accordingly, the studies identify pedagogical practice as the main focus of investigation, emphasizing the space, context, and specificity in which it has been developed.

Based on the data identified in this study, we observed that although the pedagogical practice of physical education teachers appears more frequently than studies on CE, it is still primarily framed in discussions as an action carried out within the school context to promote the teaching and learning process, maintaining ties with normative and curricular approaches. In light of this, reflecting on the epistemological

foundations of teachers' interventions, the assumptions that underpin them, and the potential for their re-signification as a continuous construction articulated with teachers' life cycles appears to constitute a fertile space for further inquiry.

This helps to explain and exemplify the complexity and scope of PE and of teachers' pedagogical interventions within the contemporary educational context. Accordingly, the studies analyzed here, which focus on the pedagogical practice of physical education teachers, are multidimensional, integrating different aspects of teaching practice through approaches aligned with various educational levels, in diverse contexts, and with specific target groups. Moreover, the studies engage with the influence of policies and guidelines, highlighting the need to align PPs with curricular standards and directives, while also seeking to integrate cross-cutting themes such as inclusion and diversity. In doing so, they open space for the integration of new investigative perspectives, with broad and interdisciplinary themes.

The interpretative analysis of the diversity of themes identified in the studies reviewed allows us to infer that these investigations have contributed to the enrichment of the field of PE, promoting broad and inclusive approaches aligned with contextual demands for equity, pedagogical innovation, and compliance with curricular guidelines. The themes identified and associated with CE and PP of teachers intersect with emerging contemporary issues, as well as educational and social challenges, establishing connections with public policies - both within the educational sphere and in projects and programs related to PE. In line with similar studies, such as those by Bagatini and Souza (2019), Batista (2015), Bonfim, Silva, and Miranda (2016), Freitas (2016), Valle and Ferreira (2024a), and Valle and Rezer (2022), the results of this study allow us to observe the connections that are being established in contemporary research perspectives.

Given the breadth observed, another finding that emerged from the analysis of the themes, objectives, and development of the studies concerns the perspective adopted in their execution. That is, how were CE and pedagogical practice of physical education teachers approached and consolidated as research objects? In what ways did the researcher's actions or positioning influence this approach?

In this regard, the data examined on the objectives and procedures adopted by the researchers highlight that CE was addressed from three general perspectives: (i) through training proposals/actions carried out by the researcher (38 studies); (ii) through initiatives not developed by the researcher but that discuss CE processes (31 studies); and (iii) through theoretical reflections on CE, without a specific focus on the analysis of training processes (14 studies).

From the analysis of the dataset, the following perspectives emerge: (i) CE can be investigated as a propositional action, focusing on the analysis of its outcomes; (ii) CE is addressed as a topic of theoretical reflection, considering its conceptions, intentions, and contributions within the context of analysis; and (iii) CE can be considered the object of study in the analysis of training processes that have already been carried out.

In turn, the pedagogical practice of physical education teachers, in relation to the researcher's involvement, can be analyzed from three approaches: (i) absence of actions or interventions involving teachers or other collaborators (70 studies); (ii) development and/or evaluation of activities and interventions carried out with teachers and other collaborators (18 studies); and (iii) observation of the activities of teachers and/or other collaborators (22 studies).

This suggests that, currently, research on PP has been developed from the following perspectives: (i) the analysis of PP as a process — an action involving different constitutive dimensions; (ii) the approach to PP as an intervention or experimentation process that enables the identification and discussion of different aspects of teachers' pedagogical practices; and (iii) the analysis of PP as a research object that fosters reflection and findings, articulating theory and practice through observation.

What the corpus of analysis reveals in common is a recurring concern with discussing themes related to pedagogical practice and the possibilities for change arising from CE and the reflective process of PP itself, as well as their intersections in everyday school life. However, despite the expansion in the volume of existing studies, we observe silences, invisibilities, and gaps in the discussion of broad and complex issues that frame school daily life, teachers' PP, and CE.

Among these absences, we highlight several fundamental issues, such as: assessment in the teaching and learning process in/of school PE; the formative trajectory and implications of the BNCC, both in CE processes and in the pedagogical practice of physical education teachers; how teachers do (or do not) incorporate new didactic-methodological approaches into their PP through CE; the objectives of school

PE in light of curricular reorganizations; teacher protagonism in training processes; the articulation and critical reflection on school dynamics and teacher education; the interrelations between CE, PP, and public policies; the effects of educational and public policies on teacher training and the organization of school work; the concept of CE as expressed by teachers; the involvement of various stakeholders in the constitution and development of CE programs/projects (e.g., departments of education); the contributions of CE to the re-signification of PP for PE teachers; and the relationship between CE and PP as elements articulated with the development and professional identity of PE teachers.

This scenario becomes broader as we explore the details of each study, as well as the intersections and implications of the discussions within the contexts in which they were produced. Hence, the relevance of constructing a State of Knowledge lies in its potential to both identify research gaps and contextualize studies with already defined proposals.

New interpretations and initiatives arising from this study should be grounded in diversified approaches, with deeper, critical, and reflective analysis, taking into account teachers' perceptions of the relationship between CE, PP, and their professional development. This implies recognizing CE as both an educational and public policy issue — one that transcends governmental agendas and informs future discussions on aspects not addressed in the studies analyzed. Moreover, PP should be understood in its entirety and complexity, overcoming the reductionist view that limits it solely to teachers' classroom actions.

This study reveals that the field of CE and PP for teachers is already consolidated, supporting studies from various perspectives. However, the debate on these themes within the field of PE and their relationship with public policies still appears to be incipient. The indicators of a consolidated debate correspond to systematic analyses of the development of training processes in smaller investigative contexts, the involvement of teachers, and the focus on relationships with the school environment, as evidenced by the existing body of work.

The data suggest that, in research on CE, there is a stronger emphasis on the proposition of actions by researchers compared to PP. CE, understood as a formative process, can be seen as a device that enables investigation, whereas PP is more frequently addressed through the analysis of actions carried out, with a focus on understanding the process and teacher interventions. However, PP emerges as an observational space for analysis, in which researchers seek to explore issues that frame such practices, while CE is viewed as a field of more theore.

In this regard, we can infer that CE, as a research object, tends to be approached as a propositional action by researchers aimed at developing and evaluating formative processes, whereas PP is addressed based on the understanding and outcomes of teachers' actions. Despite their differences, we observe that, in studies on CE, researchers play a more direct role in the field of investigation and in engaging with participants, as they are the ones proposing and developing the formative processes. In contrast, when addressing PP, the participants—through their interventions—take on a leading role in the process, as it is their actions that resonate and provide the basis for researchers' analyses.

#### 5 Final Considerations

Considering the objective of mapping, describing, and reflecting on the methodological aspects and themes addressed in studies on CE and PP of school PE teachers, the production of the State of Knowledge on these themes, between 2014 and 2024, reveals a diversity of perspectives and approaches that frame, articulate, and position the debate in multiple interfaces. The relationships within this space provide important analytical insights into the implications, contributions, and outcomes of CE for PP, while also allowing PP to be considered as a starting point for rethinking teacher education and contributing to professional development.

In terms of methodology, most of the research on CE and pedagogical practice of physical education teachers during the period analyzed followed a qualitative approach, with descriptive and exploratory objectives. Action research and case studies were the most prominent procedures, often involving PE teachers as participants. These studies were typically conducted in limited contexts, engaging a small number of stakeholders within the school environment.

These aspects show that the studies sought to explore the investigated phenomena in depth, addressing subjective and complex dimensions. They aimed to investigate the themes from various perspectives, providing answers to identified problems and thus expanding knowledge on the subject.

Regarding correlated themes, CE-related studies most frequently addressed: CE processes; the inclusion of students with disabilities; collaborative CE; the relationship between CE and PP; early childhood education; contributions of CE to PP; professional development; and the use of information and communication technologies. For PP, key topics included: PE in early childhood education; PE in the National High School Exam (ENEM); transdisciplinary practices; upper secondary education; inclusive education; PE curricula and content; ethnic-racial relations; the BNCC; and digital technologies in PP. Notably, early childhood education, the inclusion of students with disabilities, and digital technologies emerged as converging themes across both CE and PP.

Based on the thematic, methodological, and theoretical foundations of the studies analyzed, we infer the breadth and complexity of the educational landscape and highlight that CE and PP are potent areas for investigation, aligned with contemporary demands and educational policy interfaces. In this light, it is essential to rethink institutionalized CE practices by considering teachers' perceptions, concerns, and anxieties. Understanding these aspects is crucial to engage teachers in critical reflection on their professional trajectories and reduce the gap between the intended goals of CE and its actual implementation and consolidation as part of professional development.

Furthermore, it is important to broaden the understanding of PP and its complexity, moving beyond a reductive view that confines it to classroom instruction. The studies reviewed demonstrated strong connections with the school context, urging us to reflect—through theoretical frameworks and scientific evidence—on pathways to address PP challenges, acknowledging the inherent limitations of educational research. This opens space to conceptualize PP not as a static endpoint, but rather as a dynamic and evolving pedagogical construct, but as a dynamic construction influenced by multiple factors beyond CE.

By highlighting CE and pedagogical practice of physical education teachers, we reaffirm the relevance of school-based research, which is already well-established in Brazil, while also recognizing the need to involve other stakeholders in this dialogue. The intersection with such stakeholders is essential to deepen the understanding of these issues and to foster alternatives to the challenges of teacher education and pedagogical work.

We argue that existing studies, beyond advancing the debate, have revealed emerging and underexplored themes that deserve further examination. These findings support the reassessment of the goals, implementation, organization, methodologies, and strategies of CE programs and projects and their potential to reshape PP. This opens new avenues for research into the connections, convergences, and divergences between CE and PP in school PE.

Additionally, further research is needed to address the emancipatory dimensions of teaching, collaborative learning processes, professional identity, and formative needs as these relate to the professional life cycle. A starting point is understanding how teachers themselves define and interpret CE, which is essential for designing meaningful CE processes that address their real needs. It is equally important to engage multiple stakeholders in the design and implementation of CE initiatives, integrating diverse perspectives to enhance the relevance and impact of these actions.

Within the contextual and methodological parameters and the profile of the participants in this State of Knowledge, we identify the importance of broadening studies to include additional segments. One example is the doctoral research to which this State of Knowledge is connected, which includes PE teachers, school administrators, and municipal and state education authorities as research participants, in dialogue with epistemological contributions from scholars focused on CE and PP. This analytical and critical-reflexive approach offers a comprehensive perspective, identifying divergences and outlining paths to address them, thereby strengthening stakeholder participation in CE processes.

Therefore, based on the development of this State of Knowledge and the guiding research question, we suggest that there is a gap in understanding whether the CE programs developed by the Santa Catarina State Department of Education have actually mobilized or redefined the PPs of PE teachers in public schools. This potential has not been previously addressed in the studies analyzed and represents a promising field for original and methodologically rigorous research.

Finally, despite the limitations of this study, such as the low quality and inconsistency of abstracts, the time-bound scope, and the exclusion of works without the selected keywords in their titles, the adopted methodology allowed for the identification of a substantial body of research. This enabled a broad reading of

dissertations and theses, supporting contextualization and identifying key research gaps. As a contribution to future work, we emphasize the importance of improving the clarity and rigor of abstracts in academic theses and dissertations to offer readers a comprehensive understanding of the research and its context.

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Received in dezembro/2024 | Approved in abril/2025

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