

Bibliometric analysis of doctoral theses on academic practices and active methodologies: Presence and impact in physical education (1976–2025)

JOSEP MARIA CARNÉ TORRENT¹, NÚRIA LUENGOS JIMÉNEZ², JOAQUIN REVERTER MASIA³, VICENÇ HERNÁNDEZ GONZÁLEZ⁴

Department of Education Sciences, University of Lleida, SPAIN

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Abstract

This study conducts a bibliometric analysis of 61 doctoral theses on academic practices and active methodologies, defended at Spanish universities between 1976 and 2025, to explore the evolution, impact, and research dynamics in this field. Using the TESEO database, the analysis identifies sustained growth in scientific production, with an average of 1.48 theses per year and a historical peak in the period from 2021 to 2025 (18 theses), linked to the rise of active methodologies in teacher education. The gender distribution reveals a notable transition: while women predominated in early stages (100% from 1996 to 2000), men surpassed them in contributions during the most recent period (61.1% between 2021 and 2025), a pattern also reflected in academic supervision, with a complete absence of female supervisors in recent years. With regard to institutional productivity, the University of Barcelona stands out as the most active (11.48% of the theses), followed by the universities of Granada, Malaga, and Salamanca, alongside a general decentralization involving 25 universities. Thematically, the focus on didactics and school organization dominates (34 theses), while areas such as body expression didactics remain under-represented (3 theses), despite their pedagogical potential in practical contexts. A semantic analysis of thesis titles highlights terms like *teacher training*, *pedagogical innovation*, and *active methodologies* (cooperative learning, educational technologies), in line with current priorities in educational research. The implications emphasize the need for policies promoting gender equity in academic leadership, valuing institutional diversity as a source of interdisciplinary perspectives, and fostering research in underexplored areas, such as body expression, to strengthen holistic theoretical frameworks. Limitations include reliance on TESEO data, potential coverage biases, and the absence of qualitative analysis of thesis content. Nonetheless, the study provides a pioneering foundation for understanding the integration of innovative methodologies in physical education.

Keywords: physical education; doctoral theses; active methodologies; bibliometric analysis; academic practices; gender; teacher education

Introduction

Doctoral theses constitute one of the highest expressions of academic knowledge production within universities and play a strategic role in the development of scientific disciplines. Beyond fulfilling the requirements for obtaining a doctoral degree, theses represent original contributions to knowledge, reflect emerging research agendas, and reveal the epistemological, methodological, and institutional orientations that characterize a given field at a specific historical moment (Díaz-Campo, 2016; Fuentes & Arguimbau, 2010; Olmedilla-Zafra et al., 2017). Consequently, doctoral research has become a valuable source for understanding the evolution of scientific communities, the consolidation of research areas, and the training processes through which new generations of scholars are incorporated into academia.

From a sociological perspective, doctoral theses are embedded within broader systems of knowledge production and academic reproduction. Authors such as Bourdieu (1988), Knorr-Cetina (1999), and Whitley (2000) have emphasized that scientific knowledge is generated within specific academic cultures shaped by institutional norms, disciplinary traditions, and power structures. Doctoral education represents a key mechanism through which these cultures are transmitted and transformed, enabling the emergence of new research topics and methodological approaches. In this sense, doctoral theses provide an exceptional lens through which to observe the evolution of scientific fields and the dynamics of academic careers (Fumasoli et al., 2015; O'Connor et al., 2021).

The growing relevance of doctoral research has been accompanied by significant transformations in higher education systems worldwide, and the massification and internationalization of universities, increased competition for research funding, and the growing emphasis on research productivity and rankings have intensified the strategic importance of doctoral education (Hazelkorn, 2015; Marginson, 2016; Teixeira et al., 2004). Doctoral graduates are increasingly expected not only to contribute to scientific advancement but also to

support innovation, social development, and knowledge transfer beyond academia (Cruz-Castro & Sanz-Menéndez, 2005). Consequently, understanding the characteristics and evolution of doctoral research has become an important concern for policymakers, universities, and research organizations.

Within this context, bibliometric analysis has emerged as a powerful methodological approach for examining scientific production and identifying patterns of development across disciplines. Traditionally applied to journal articles, bibliometric techniques have increasingly been extended to doctoral theses as a means of exploring research productivity, thematic trends, institutional contributions, collaboration networks, and the impact of doctoral training (Bordons et al., 2013, 2015; Delgado López-Cózar et al., 2006; Hernández-González et al., 2020). The growing availability of digital repositories and national databases has further facilitated large-scale analyses of doctoral research outputs, enabling longitudinal examinations of scientific development over extended periods.

Previous studies have demonstrated the value of bibliometric approaches in a wide range of disciplines, including education, psychology, medicine, communication, public relations, and both television and gender studies (Agudelo et al., 2003; Castillo & Xifra, 2006; Centeno et al., 2001; Curiel-Marín & Fernández-Cano, 2015; Diego & Prim, 2008; Figueredo et al., 2002; Olivas-Ávila & Musi-Lechuga, 2010; Torres & Torres, 2005). These investigations have contributed to identifying dominant research themes, institutional leadership, patterns of scientific collaboration, and the evolution of disciplinary priorities. Moreover, recent bibliometric studies have incorporated analyses of gender representation, academic careers, and research performance, highlighting the broader social and organizational dimensions of knowledge production (Brown et al., 2020; Elsevier, 2020; European Commission, 2021; Van den Besselaar & Sandström, 2016).

In the field of physical education, research has experienced substantial growth in recent decades, reflecting broader transformations in educational theory and pedagogical practice. The discipline has progressively evolved from traditional instructional models focused on technical skill acquisition toward more holistic approaches emphasizing competency development, student engagement, critical thinking, inclusion, and lifelong learning (Armour, 2011; Kirk, 2010; Stolz, 2014). This pedagogical shift has stimulated increasing interest in innovative teaching practices and learner-centred methodologies capable of responding to the complex educational challenges of contemporary societies.

Within this framework, active methodologies have gained particular prominence. Rooted in constructivist and sociocultural theories of learning, these approaches place students at the centre of the educational process and encourage participation, collaboration, reflection, and problem solving (Anderson & Krathwohl, 2001). Methodologies such as cooperative learning, project-based learning, inquiry-based learning, flipped classrooms, and simulation-based instruction have demonstrated positive effects on student motivation, academic achievement, social competence, and engagement across educational settings (Crisol Moya & Caurcel Cara, 2021; Fernández-Espínola et al., 2020; Fernandez-Rio et al., 2017; García Martínez et al., 2021; León Díaz et al., 2023). In physical education specifically, active methodologies have been associated with improvements in motor learning, social interaction, and autonomy, and the development of key competencies required for lifelong participation in physical activity (Hastie et al., 2013; López-Pastor et al., 2016).

Despite the growing importance of active pedagogies in educational research and practice, relatively little attention has been paid to their representation within doctoral research in physical education. Existing studies have primarily focused on thematic classifications of doctoral theses, institutional productivity, or the scientific trajectories of doctoral graduates. The pioneering work of Ponce de León Elizondo, et al. (1998) provided one of the first systematic analyses of doctoral theses in physical education in Spain, identifying major thematic trends during the period examined. More recently, Hernández-González et al. (2018) applied bibliometric techniques to doctoral research in specific areas such as martial arts and combat sports, while subsequent studies explored the relationship between doctoral training, research productivity, and the development of academic careers (Hernández-González et al., 2020, 2022). However, no comprehensive bibliometric study has specifically examined the extent to which active methodologies and innovative pedagogical practices have been incorporated into doctoral research within physical education over time.

This gap is particularly relevant given the increasing prominence of educational innovation, competency-based learning, and student-centred pedagogies in both teacher education and school practice. Understanding how these themes have evolved within doctoral research can provide valuable insights into the development of the discipline, reveal emerging research priorities, and identify areas requiring further scholarly attention. Furthermore, such analysis may contribute to understanding how doctoral programmes respond to changing educational demands and support the dissemination of innovative teaching approaches.

Therefore, the aim of this study is to conduct a bibliometric analysis of doctoral theses defended at Spanish universities between 1976 and 2025 that address academic practices and active methodologies, with particular attention to their application within physical education. By examining publication trends, thematic evolution, institutional participation, and the impact of research, this study seeks to provide a comprehensive overview of the development of this field and contributes to a deeper understanding of educational innovation processes within doctoral research and teacher education.

Material & Methods

Design

Given the absence of comprehensive studies examining the evolution of doctoral research on academic practices and active methodologies in physical education, this study adopted a descriptive, longitudinal, retrospective, and correlational design based on documentary and bibliometric analysis of doctoral theses. This methodological approach is particularly suitable for identifying patterns of scientific production, thematic evolution, institutional participation, and research trends over extended periods. By analysing doctoral theses as indicators of knowledge production and academic development, the study seeks to contribute to a better understanding of how active pedagogical approaches have been incorporated into doctoral research within the Spanish university system.

The methodological strategy follows the validity and reliability recommendations proposed by Hernández-González et al. (2018), as well as the ethical, transparency, and comparability principles outlined in the Berlin Principles on Ranking of Higher Education Institutions (International Ranking Expert Group, 2006). Particular attention was given to source traceability, data verification, the reproducibility of the search process, and institutional comparability, thereby ensuring the robustness and credibility of the findings.

Unit of Analysis

The unit of analysis consists of the descriptive records of doctoral theses available in the TESEO database (Spanish Organized Theses), managed by the Ministry of Science, Innovation and Universities. TESEO constitutes the official national repository of doctoral theses defended at Spanish universities and represents the most comprehensive source for examining the evolution of doctoral research in Spain. The database includes theses defended since 1976 and has been publicly accessible online since 1997 through its advanced search interface: <https://www.educacion.gob.es/teseo/irBusquedaAvanzada.do>

The selection of TESEO as the primary data source is justified by its extensive temporal coverage, standardized record structure, and nationwide scope, which enable the systematic identification and analysis of doctoral research trends across institutions and disciplinary areas.

Procedure

The identification of doctoral theses was carried out through an advanced search in the TESEO database. The search strategy was designed to capture doctoral research related to academic practices and active methodologies within educational contexts, with particular attention to physical education. Searches were conducted in the “all words” field and simultaneously applied to title and abstract fields using combinations of terms associated with practicum, academic practices, education practicum, active methodologies, active methodologies in education, and active methodologies in physical education. Boolean operators were employed to maximize sensitivity and ensure the retrieval of all potentially relevant records.

Each retrieved record included extended descriptive information, such as authorship, university, department, date of defence, doctoral programme, supervisor, examination committee, descriptors, abstract, and keywords. These data were transferred to a purpose-built database in Microsoft Excel (version 2021) entitled “Theses on Academic Practices in Education”, which served as the basis for subsequent bibliometric and descriptive analyses.

To enhance methodological rigour and minimize selection bias, all records were independently reviewed by two researchers during a single screening session conducted on May 7, 2025. Following the initial retrieval, a systematic data cleaning and verification process was undertaken, which involved identifying and removing duplicate records, excluding theses that included the search terms but were not substantively related to the object of study, and eliminating works whose content did not address academic practices or active methodologies in physical education. Inclusion and exclusion criteria were applied after the preliminary cleaning process to ensure that the final data set was both consistent and relevant.

The final selection of records was independently assessed by the two reviewers, and any disagreements regarding eligibility were discussed until consensus was reached. This procedure strengthened the reliability of the screening process and ensured consistent application of the established selection criteria.

Incomplete information was identified in seven records, mainly affecting descriptive variables such as the year of defence, department affiliation, or other identifying characteristics of the thesis. To improve the completeness and accuracy of the data, missing information was supplemented by consulting institutional repositories, university archives, and official academic sources. These verifications were limited to descriptive metadata and did not modify the substantive content of the original records.

As previously noted by Delgado López-Cózar et al. (2006), the TESEO database presents certain limitations related to coverage, updating procedures, and record quality. Common issues include missing metadata fields, inconsistencies in institutional classifications, and occasional formal errors in data entry. Acknowledging these limitations, the present study incorporated a manual verification stage for incomplete records and implemented data quality controls throughout the research process. These measures were intended to enhance the reliability of the final database and ensure the validity of subsequent bibliometric analyses.

Results

Evolution of Doctoral Thesis Productivity

Between 1976 and March 2025, 61 doctoral theses matching the inclusion criteria were incorporated into the TESEO database, representing an average of 1.48 theses per year. The quantitative evolution of theses on academic practices and active methodologies grouped by five-year periods (1996–2025) and broken down by gender shows a progressive increase: from three theses in the period 1996–2000 to 18 in 2021–2025. The trend is not linear, with a dip to five theses from 2006 to 2010, followed by sustained growth, reaching historical peaks in the most recent five-year spans (15 in 2016–2020; 18 in 2021–2025). A linear regression line with $R^2 = 0.8494$ confirms a significant positive correlation between time and academic output.

In terms of gender distribution, women predominated in early periods, contributing all theses in the period 1996–2000 and maintaining a majority until 2016–2020 (66.7%). However, from 2021 to 2025, their contribution dropped to 38.9% (7 out of 18), marking the first relative decline. In contrast, male participation began with no theses (1996–2000) and steadily increased, culminating in 11 theses between 2021 and 2025 (61.1%). This shift in authorship signals a gender transition, with men surpassing women in the most recent period.

The relationship between time and gender suggests independent dynamics in productivity and authorship, highlighting a scenario of academic growth alongside gender-based transformations.

Figure 1

Evolution of Doctoral Thesis Productivity by Five-Year Periods and Gender

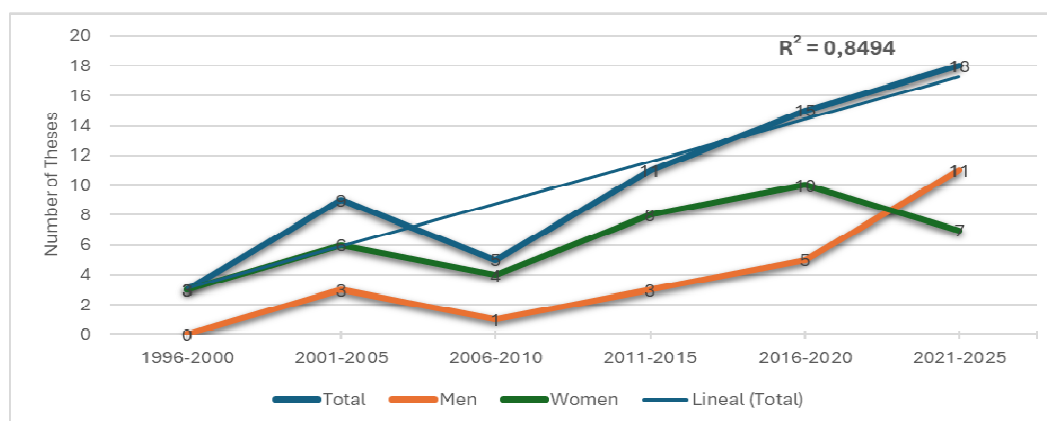


Figure 2 shows the evolution of doctoral thesis supervision by five-year periods and gender. During the first two periods analysed (1996–2000 and 2001–2005), supervision was predominantly carried out by men, albeit with a small number of theses. This male predominance continued in the period 2006–2010, with a more marked difference compared to female supervision.

From the period 2011–2015 onward, a trend toward greater convergence between both genders is observed. In the two most recent periods (2016–2020 and 2021–2025), female supervision surpassed that of males, with a greater number of theses directed by women. These results indicate a progressive change in the distribution of doctoral supervision by gender over time.

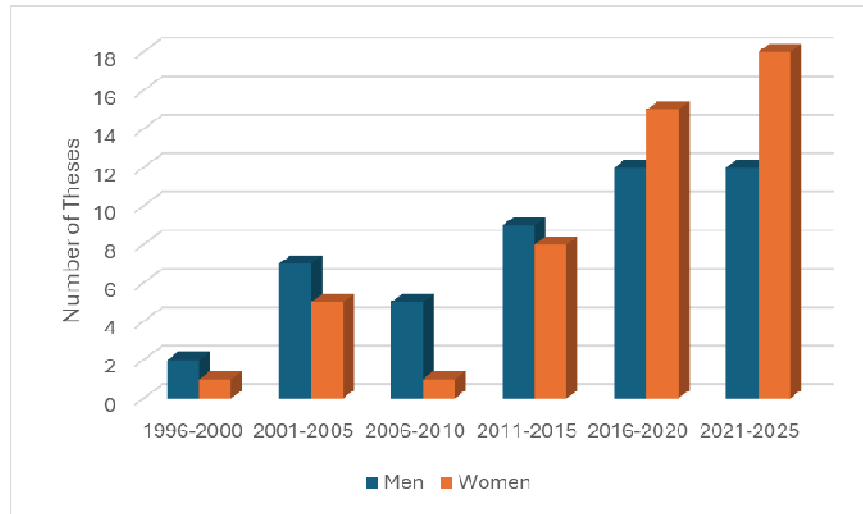
Among the most productive supervisors, Professor Teresa Mauri Majos (University of Barcelona) stands out as the leading female supervisor with three theses, followed by Professor José Antonio González Riaño (University of Oviedo) and Manuel Cebrián de la Serna (Chair of Educational Technology, University of Malaga), with each supervising two theses.

These individual contributions are in line with broader trends. The active participation of scholars like Teresa Mauri Majos from the University of Barcelona coincides with periods of higher production (e.g. 2006–2010), while the contributions of José Antonio González Riaño and Manuel Cebrián de la Serna reflect institutional diversity in thesis supervision.

The gender distribution shows a non-linear pattern: men maintained a steady but decreasing presence until 2011–2015, while women reached a peak in 2006–2010 before experiencing a progressive decline. The absence of female supervisors from 2021 to 2025 contrasts with the historical involvement of researchers such as Teresa Mauri Majos. Overall, the data highlight a dynamic landscape, where individual and institutional contributions coexist with shifts in gender composition.

Figure 2

Evolution of Doctoral Thesis Supervision by Five-Year Periods and Gender



Institutional Productivity

Table 1

List of the 10 Most Productive Institutions

<i>Universidad</i>	<i>Nº de Tesis</i>	<i>% Tesis</i>
<i>University of Barcelona</i>	7	11.48
<i>University of Granada</i>	4	6.56
<i>University of Malaga</i>	4	6.56
<i>University of Salamanca</i>	4	6.56
<i>Autonomous University of Madrid</i>	3	4.92
<i>University of Sevilla</i>	3	4.92
<i>University of the Basque Country</i>	3	4.92
<i>National University of Distance Education (UNED)</i>	3	4.92
<i>Autonomous University of Barcelona</i>	2	3.28
<i>University of Oviedo</i>	2	3.28

Table 1 presents the ten most productive institutions in the supervision of doctoral theses on the study topic, according to the number of works and their relative percentage. The University of Barcelona stands out as the leading institution with seven theses (11.48% of the total analysed), followed by three universities with identical contributions: the University of Granada, the University of Malaga, and the University of Salamanca, each with four theses (6.56%).

A second group comprises four institutions: the Autonomous University of Madrid, the University of Sevilla, the University of the Basque Country, and the National University of Distance Education (UNED), each with three theses (4.92%). Finally, the Autonomous University of Barcelona and the University of Oviedo complete the list with two theses each (3.28%).

The percentage distribution reveals a moderate concentration in academic output: the top four institutions account for 31.16% of the total, while the ten listed institutions collectively represent 57.4% of the theses considered in the study. This suggests that although some institutions display greater research activity, output is spread across multiple universities without evident monopolies. The remaining 42.6% corresponds to 25 additional universities not included in this selection, highlighting a broad geographical and institutional dispersion in the supervision of doctoral theses on active methodologies and academic practices.

The data underscore a scenario of institutional diversity, with significant contributions from both traditional universities (e.g. Barcelona and Granada) and institutions with specific educational approaches (e.g. UNED). The presence of the University of Oviedo, previously associated with supervisors such as González Riaño, reinforces the relevance of institutions with specialized profiles in the analysed field.

Presence on Doctoral Thesis Committees

Table 2

Academics with the Most Appearances on Thesis Committees

<i>Name</i>	<i>University</i>	<i>Presences</i>	<i>Presidencies</i>	<i>Secretaries</i>	<i>Vocales</i>
<i>Mercedes González Sanmamed</i>	University of A Coruña	3	2	1	0
<i>Luis Miguel Villar Angulo</i>	University of Sevilla	3	2	0	1
<i>Maria Elena Cano García</i>	University of Barcelona	2	0	0	2
<i>Manuel Cebrián de la Serna</i>	University of Malaga	2	0	0	2
<i>Rosa Maria Colomina Alvarez</i>	University of Barcelona	2	1	1	0
<i>Gloria Alicia De la Cruz Guerra</i>	University of la Laguna	2	0	0	2
<i>José Antonio del Barrio del Campo</i>	University of Cantabria	2	1	0	1
<i>Jaime Ibáñez Quintana</i>	University of Burgos	2	0	1	1
<i>Joan Mateo Andres</i>	University of Barcelona	2	2	0	0
<i>Ángel Pérez Gómez</i>	University of Málaga	2	2	0	0
<i>Margarita P. Pino Juste</i>	University of Vigo	2	1	1	0
<i>Honorio Salmerón Pérez</i>	University of Granada	2	1	0	1
<i>Miguel Ángel Zabalza Beraza</i>	University of Santiago	2	2	0	0

Table 2 details the participation of academics on doctoral thesis committees, classifying their roles (president, secretary, and member) and institutional affiliation. Mercedes González Sanmamed from the University of A Coruña and Luis Miguel Villar Angulo from the University of Seville stand out as the academics with the highest number of appearances (three each). Both have predominantly served as presidents (two presidencies each), while González Sanmamed has also acted once as secretary.

Among the academics with two appearances, there is a heterogeneous distribution of roles. Joan Mateo Andres from the University of Barcelona and Ángel Pérez Gómez from the University of Málaga have served exclusively as presidents, whereas Maria Elena Cano García (also from the University of Barcelona) and Manuel Cebrián de la Serna (University of Málaga) have only served as committee members.

Other academics, such as Rosa Maria Colomina Alvarez (University of Barcelona) and Margarita R. Pino Juste (University of Vigo), have combined the roles of president and secretary.

At the institutional level, the University of Barcelona and the University of Málaga are the most represented, each with three academics on the list. The recurrent presence of figures such as Miguel Ángel Zabalza Beraza from the University of Santiago, who presided over both committees in which he participated, and Honorio Salmerón Pérez from the University of Granada, who assumed mixed roles (president and member), is noteworthy.

The table reflects geographical diversity, with participation from universities in ten different Spanish autonomous communities. However, no clear patterns are identified between the number of appearances and the roles performed, suggesting that the distribution depends on individual or institutional factors not specified in the data.

Thematic Category

Figure 3

Classification of Doctoral Theses According to Areas of Knowledge

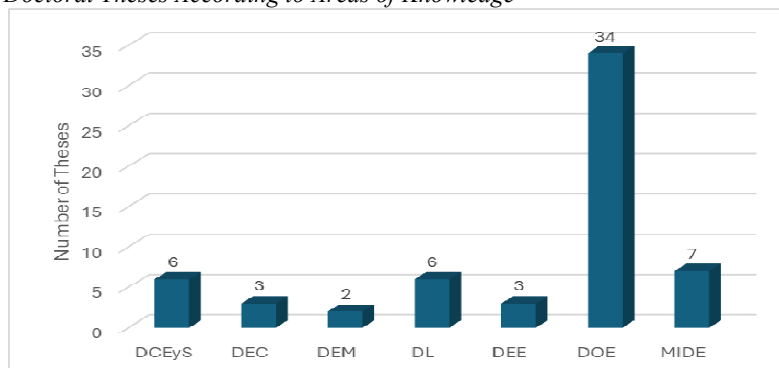


Figure 3 shows the distribution of the doctoral theses analysed according to the academic fields to which they are assigned. A significant concentration is observed in the area of didactics and school organization (DOE), with a total of 34 theses, clearly representing the majority compared to the other areas. This prominence

can be interpreted as evidence of the predominant interest in addressing active methodologies and academic practices from a didactic and organizational perspective, focused on educational innovation and the improvement of teaching and learning processes.

At a considerable distance, other areas such as research methods and educational assessment (MIDE) (7 theses), didactics of experimental and social sciences (DCEyS), and didactics of language (DL) (both with 6 theses) also show relevant participation. These data suggest a certain thematic transversality in doctoral research, where active methodologies are also articulated in specific disciplinary contexts such as sciences, social sciences, and language, albeit less frequently than in the organizational–didactic field.

In contrast, the areas of didactics of corporal expression (DEC) and didactics of written expression (DEE) account for three theses each, while Didactics of Musical Expression (DEM) is the least represented, with only two theses. This low presence may be associated with the limited number of doctoral programmes specializing in these areas, as well as with a weaker research tradition linked to methodological innovation in expressive fields.

Overall, the data reveal a thematic concentration in the field of general didactics and school organization, reinforcing the idea that academic practices and active methodologies are primarily approached from theoretical frameworks that prioritize institutional transformation and the improvement of educational quality through teaching innovation.

Figure 4 presents a word cloud generated from the analysis of the titles of the doctoral theses included in the study, using word cloud software. This visualization synthetically highlights the most frequent terms in the works analysed between 1976 and 2025 related to academic practices and active methodologies in the field of physical education.

The largest and most frequent used words – such as “education”, “practicum”, “teacher”, “action”, “active”, “faculty”, and “reflection” – show a significant recurrence of themes linked to teacher professional development, initial training processes, and the implementation of educational practices focused on active participation.

References to different levels of the educational system (primary, secondary, university, and undergraduate) are also observed, suggesting broad and transversal coverage in the reviewed research. Additionally, terms referring to specific disciplinary areas (physical education, music, history, STEM, and language) emerge, along with concepts related to pedagogical and curricular innovation (technologies, competencies, impact, model, evaluation, and collaborative learning).

Taken together, this figure reveals a research orientation focused on the improvement of teaching practice, with a reflective and applied approach that aligns with current trends in educational research.

Figure 4

Word Cloud of Frequent Terms in Doctoral Theses on Physical Education (1976–2025)



Discussion

The study identifies a growing trend in the production of doctoral theses on academic practices and active methodologies from 1996 to March 2025, increasing from three theses in the period from 1996 to 2000 to 18 between 2021 and 2025. Although the progression is not entirely linear – with occasional declines, such as between 2006 and 2010 (5 theses) – the linear regression coefficient ($R^2 = 0.8494$) shows a strong positive correlation between time and production volume. This trend aligns with the progressive rise of active methodologies in teacher education programmes, a phenomenon documented by authors such as Anderson and Krathwohl (2001), and more recently by Crisol Moya et al. (2021) and León-Díaz et al. (2023), who emphasize the influence of constructivist pedagogical approaches in educational research.

The concentration of doctoral theses in the field of didactics and school organization, compared to the lower number of works linked to other subfields such as the didactics of body expression, can be interpreted as a reflection of certain structural priorities in doctoral programmes in physical education. This thematic distribution is usually associated with the existence of more consolidated research traditions, the availability of stable research groups, and greater institutionalization of certain lines of research within the university system – aspects extensively described in the literature on the organization and specialization of scientific fields (Bourdieu, 1988; Whitley, 2000). From this perspective, doctoral output responds not only to individual academic interests but also to organizational dynamics that condition the visibility and continuity of certain areas of knowledge.

Furthermore, the under-representation of certain specific fields may be related to unequal institutional capacity to support specialized doctoral programmes, especially in contexts where the number of accredited researchers, programme stability, or resource availability is limited. Studies on university governance and the development of the higher education system have indicated that these asymmetries should not be interpreted in terms of intrinsic academic relevance, but rather as the result of structural, historical, and organizational dynamics that influence the configuration of doctoral programmes and the orientation of research (Hazelkorn, 2015; Marginson, 2008). In this sense, the observed patterns reflect the conditions of knowledge production more than an epistemological hierarchy among subfields.

The concentration of theses supervised by certain academic figures reveals how some researchers act as knowledge hubs within well-established thematic lines. This phenomenon is widely explored in academic network studies, which show how certain actors – due to their trajectory, leadership, and ties to stable research groups – occupy central positions in the production and dissemination of knowledge (Crane, 1972; Glänzel & Schubert, 2005). High individual productivity is often associated with factors such as institutional prestige, the ability to attract doctoral students, access to competitive funding, and leadership of long-term research projects.

From an institutional perspective, the predominance of certain universities in supervising theses on academic practices and active methodologies is not surprising. A significant proportion of scientific output tends to be concentrated in institutions with established research traditions, mature departmental structures, and specialized doctoral programmes. However, the observed dispersion of thesis supervision across diverse universities suggests a process of decentralization and democratization of knowledge, which is characteristic of more open and competitive higher education systems (Marginson, 2008; Teixeira et al., 2014).

This distributed pattern indicates a progressive expansion of research capacity in education, especially concerning innovative approaches such as active methodologies. In this regard, recent studies have emphasized that the growing interest in these methodologies has been accompanied by institutional diversification in research, encouraged by quality assurance, accreditation, and external evaluation policies promoted by national and international agencies (Fumasoli et al., 2020; Hazelkorn, 2015). This academic and territorial expansion is significant because it enables greater contextual adaptation of research proposals and avoids excessive concentration of knowledge in dominant institutional hubs.

Finally, it is worth noting that the combination of recognized academic leaders and institutional diversity can foster a balanced research ecosystem, where centres of excellence coexist with emerging spaces that enrich the field through varied perspectives and interdisciplinary approaches.

The composition of doctoral thesis committees in the analysed domain reflects considerable institutional and academic diversity, albeit without structured patterns in terms of participation frequency or roles. This apparent heterogeneity may not indicate randomness but might rather be the result of collaborative dynamics typical of open academic communities, where prestige, research visibility, and thematic specialization shape the selection of committee members (Bourdieu, 1988; Cruz-Castro & Sanz-Menéndez, 2005).

The recurring presence of certain universities, however – such as Barcelona and Málaga – whose influence cannot be interpreted purely in quantitative terms is notable. These institutions act as true "epistemic nodes" (Whitley, 2000) within the scientific field, concentrating academic capital and infrastructures that support both knowledge production and validation. The frequent participation of their academics in thesis committees aligns with previous research showing how consolidated centres often play a symbolic legitimizing role in academic evaluation processes (Bordons et al., 2013; González-Alcaide et al., 2008).

Informal co-optation networks and prior scientific collaborations also shape the composition of these committees. Sociological studies of science have documented how trust, mutual recognition, and shared research lines significantly influence these processes (Bordons et al., 2015; Knorr-Cetina, 1999). In this sense, the recurrence of certain profiles may be explained by their position within consolidated communities of practice, where academic judgment intertwines with relational trajectories.

Moreover, this participation may relate to the logic of academic reputation, where involvement in committees serves not only an evaluative function but also one of visibility and status consolidation within the field (Merton, 1973). Thus, the selection of evaluators is not neutral but reflects symbolic dynamics that reinforce academic power structures.

The results presented in Figure 3 reveal a significant concentration of doctoral theses in the field of didactics and school organization (DSO), to the detriment of other areas, notably the didactics of body expression (DBE), which accounts for only three theses within the analysed corpus. This asymmetry may be

interpreted as a reflection of a dominant orientation towards generalist theoretical frameworks in the study of active methodologies, where the organizational and institutional dimensions of educational change have been prioritized (Barba et al., 2014; Martín-Romera et al., 2018). While the predominance of these perspectives has contributed to the development of innovative models at both macro and meso levels, it tends to obscure the specificities of disciplinary areas and their didactic configurations.

The limited representation of theses in DBE is particularly striking, especially considering that various studies have emphasized the high potential of physical education as a privileged context for implementing active methodologies (Casey & Kirk, 2020; García-Martínez et al., 2021). Models such as cooperative learning, sport education, teaching games for understanding, and project-based learning have shown well-documented benefits in motor contexts, both in terms of motivation and competence development (Fernández-Espínola et al., 2020; Fernández-Río et al., 2017; Hastie et al., 2013). However, this empirical evidence has not yet translated into a consolidated thematic trend in doctoral research.

Several factors may account for this low production. First, the historically peripheral position of physical education within the epistemological hierarchy of educational sciences has limited the development of robust scientific communities in the field of DBE (Kirk, 2010; López-Pastor et al., 2016). Second, the limited presence of theses focused on DBE may be linked to the low institutional visibility of this area within doctoral programmes and research lines in physical education. Although significant contributions have emerged from this perspective, its development as a priority line of educational research appears to be less established when compared to other areas such as school organization and sport pedagogy (López-Pastor et al., 2016). Lastly, many analytical frameworks used in educational innovation research tend to adopt transversal approaches that, although useful, often hinder the incorporation of dimensions such as corporeality, lived experience, or situated learning through motor action (Shilling, 2012; Stolz, 2014).

In this context, it becomes essential to reclaim the epistemological and pedagogical value of DBE within the framework of active methodologies. Physical education not only provides authentic settings for active learning but also incorporates a holistic perspective of the subject, which can significantly enrich contemporary pedagogical discourse (Armour, 2011). Promoting further research in DBE would help to highlight the centrality of the body in teaching–learning processes and foster the development of theoretical and practical frameworks that are responsive to the specificities of this disciplinary area.

Also, the semantic analysis of thesis titles reveals a thematic concentration around terms such as “education”, “practicum”, “teacher”, “action”, “active”, “faculty”, and “reflection”. This lexical recurrence suggests a research focus on initial and ongoing teacher education, professional development, and the implementation of participatory methodologies in educational contexts.

This trend aligns with current priorities in educational research, which emphasize the need to innovate teaching practices through active and reflective approaches. For example, Aguilera-Morales et al. (2021) conducted a review of articles published in Spanish science education journals between 2014 and 2018 and identified a predominant focus on teacher education and the use of active methodologies in science teaching.

Likewise, at the S12 Symposium of the International Congress on Educational Innovation and Trends (INNTED, 2021), coordinated by Rocío Jiménez Cortés and Bartolomé Rubia Avi, the growing interest in emerging methodologies in educational research was highlighted. These include approaches such as digital narratives, critical autoethnographies, and performative ethnographies, which offer powerful interpretive frameworks for the in-depth analysis of teaching and learning processes in complex and culturally diverse educational contexts.

These methodologies enable the exploration of both teacher and student experiences, promoting more contextualized and meaningful research. The adoption of such practices reflects a commitment to educational quality and adaptation to the changing demands of the academic environment.

Taken as a whole, the semantic analysis of thesis titles suggests a convergence between current research concerns and emerging trends in education, highlighting a clear commitment to improving teacher education through the implementation of innovative and reflective pedagogical practices.

Conclusions

This study highlights a sustained and growing trend in the production of doctoral theses focused on academic practices and active methodologies within Spanish universities, particularly in the field of physical education, between 1976 and 2025. This evolution not only reflects a consolidated academic interest in innovative pedagogical approaches but also suggests the progressive integration of such methodologies into teacher education processes.

The findings also reveal notable transformations in authorship and supervision from a gender perspective. While some progress has been made, the recent decline in female participation in thesis supervision is a cause for concern, as it points to the persistence of structural barriers limiting equal access to academic leadership roles. These results call for institutional policies that incorporate a gender-sensitive approach to promoting equity in doctoral supervision.

The institutional diversity observed in the production and supervision of theses suggests a decentralization of knowledge creation, fostered by more open and competitive evaluation frameworks. This distributed pattern may represent an opportunity to enrich the field with contextually adapted and interdisciplinary perspectives, contributing to a more pluralistic, critical, and inclusive approach to educational research.

Finally, the semantic analysis of thesis titles reveals a clear thematic convergence around the improvement of teaching practices, professional development, and methodological innovation key dimensions in strengthening teacher education that is aligned with the contemporary challenges of the educational landscape. However, the very limited presence of doctoral theses in the didactics of body expression area (DBE) raises important concerns. Despite the demonstrated pedagogical potential of this field in fostering active, embodied, and situated learning processes, DBE remains under-represented within doctoral research. Addressing this gap requires greater institutional recognition of the epistemological and didactic value of DBE and a more explicit inclusion of this area in research agendas and doctoral programmes related to physical education.

Limitations of the Study

This study presents several limitations that must be considered when interpreting the results. First, the analysis is based exclusively on records available in the TESEO database, which, despite being the official reference source for doctoral theses defended in Spain, has known limitations related to coverage, record updates, and the possible absence of certain descriptive fields. Although manual verification processes were carried out to supplement incomplete information, the possibility of minor errors existing in the analysed data cannot be ruled out. Second, the study adopts a strict bibliometric approach, focused on the analysis of metadata and the information available in the titles, descriptors, and abstracts of the doctoral theses. This approach does not enable a deeper understanding of the full content of the works or a qualitative evaluation of the theoretical foundation, methodological design, or the degree of actual implementation of the active methodologies used in each research project.

Finally, the thematic categorization was based on the fields of knowledge and the terms most frequently found in the thesis titles, which facilitates the identification of general trends but may oversimplify the conceptual and disciplinary complexity of some works. These limitations open the door to future research that incorporates more detailed qualitative analyses and complementary documentary sources.

Conflict of Interest

The authors declare no conflict of interest.

Declaration of the Use of Generative AI and AI-Assisted Technologies in the Writing Process

During the preparation of this manuscript, the authors utilized the AI-based tool ChatGPT (OpenAI) to assist in language editing and the initial phrasing of certain background sections. The content was subsequently reviewed and revised by the authors to ensure accuracy and originality. No data analysis or interpretation was performed using AI tools. The authors take full responsibility for all content.

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