

Evolution and Trends of Research on Kindergarten Teacher Professional Development: A Bibliometric Analysis Based on Web of Science (2000–2025)

Research Overview

This bibliometric study analyzes 1,242 Web of Science publications (2000–2025) on kindergarten teacher professional development. Employing descriptive statistics, impact analysis, and keyword co-occurrence analysis, it maps the field's developmental trajectory, core contribution networks, and thematic evolution, revealing a three-stage paradigm shift from content-focused training toward an ecosystem-oriented approach.

Purpose of Study

Kindergarten teachers' professional competence is a decisive factor in children's long-term learning trajectories. Over the past two decades, diverse professional development (PD) models—coaching, professional learning communities, and digital learning—have accumulated a substantial empirical base. Yet existing syntheses rely largely on narrative reviews, which cannot systematically capture the field's macro-level knowledge structure or developmental dynamics. To address this gap, this study employs bibliometric analysis to systematically examine the global landscape of kindergarten teacher PD research indexed in the WoS Core Collection from 2000 to 2025. The study pursues three aims: (1) mapping annual publication trends and developmental stages; (2) identifying core contributing journals, authors, and countries/regions by output and citation impact; and (3) revealing the knowledge structure and thematic evolution of the field over time.

Research Methods

A total of 1,242 publications were retrieved from the WoS Core Collection (SCI-EXPANDED, SSCI, and ESCI) using a structured search targeting intersections of early childhood education contexts, in-service professional development, and teacher training. Pre-service teacher education was systematically excluded via NOT operators to ensure sample precision. The dataset spans 2000–2025, including early access articles, and was retrieved on November 26, 2025.

Three complementary methods were applied: (1) descriptive statistics (annual volume, source distribution, collaboration patterns) to map growth trends; (2) impact analysis using total citations (TC), h-index, and normalized indicators to evaluate the influence of journals, authors,

and countries; and (3) author keyword co-occurrence network analysis via VOSviewer to identify thematic clusters. Temporal trend analysis was conducted in Bibliometrix/Biblioshiny (R 4.5.1) to trace thematic evolution across three periods.

Results and Discussion

The findings reveal three interconnected dimensions. First, research output grew steadily, accelerating markedly after 2010 and remaining high throughout the COVID-19 period (2020–2022), suggesting that pandemic-related disruptions intensified interest in teacher professional learning—especially digital PD modalities. Publication is concentrated in a small set of core journals (e.g., *Early Childhood Research Quarterly*, *Early Education and Development*), accounting for over one-quarter of the total.

Second, the United States dominates both output and total citations (TC = 21,380), revealing significant geographic imbalance. Scholars such as Pianta (TC = 3,242) and Justice (h-index = 24) have established the Classroom Assessment Scoring System (CLASS) as the field's dominant measurement framework, forming its theoretical and methodological core. Scholars from China and Nordic countries show growing average citation impact, yet the field remains substantially shaped by Anglo-American paradigms.

Third, keyword co-occurrence analysis identifies three major thematic clusters: (1) Curriculum and Instruction, centering on domain-specific content knowledge in literacy, mathematics, and science education; (2) Education Policy and Training Mechanisms, focusing on coaching, classroom quality assessment, and implementation science; and (3) Child Development and Educational Psychology, emphasizing teacher–child interaction, teacher beliefs, self-efficacy, and child outcomes. Together, these clusters constitute the field's overarching knowledge ecosystem.

Temporal trend analysis reveals a three-stage paradigm shift. During 2013–2017, research centered on subject-knowledge and curriculum content, reflecting post-No Child Left Behind accountability pressures. Between 2018 and 2020, the field shifted toward practice-oriented mechanisms—coaching, implementation, and standardized assessment (CLASS)—as policy mandates linked classroom quality to program funding. From 2021 onward, a psychological deepening emerged, with teacher well-being, self-efficacy, and inclusive education rising as high-frequency keywords. This trajectory reflects a broader theoretical evolution from a “features checklist” model toward an ecosystem perspective that foregrounds teachers' inner

resources, emotional labor, and contextual working conditions.

These findings carry implications for both research and practice. The persistent dominance of Western frameworks calls for greater cross-cultural inquiry and locally grounded theory, particularly from East Asian and non-English-speaking contexts. The field also urgently needs to examine how generative AI reshapes teacher knowledge (e.g., TPACK), professional well-being, and professional identity. Future studies should adopt longitudinal and mixed-methods designs to illuminate how ecological factors—institutional support, emotional labor, and cultural context—interact to shape kindergarten teacher PD effectiveness and ultimately benefit children's learning outcomes.

Keywords: kindergarten teacher professional development, bibliometrics, thematic evolution; ecosystem perspectives