

MAPPING THE TEACHERS' PSYCHOLOGICAL COMPETENCIES: A BIBLIOMETRIC ANALYSIS OF COGNITIVE AND SOCIO- EMOTIONAL DOMAINS

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Abstrak

Tingginya tuntutan pendidikan inklusif mengungkap kesenjangan kritis dalam kesiapan psikologis calon guru, sehingga diperlukan investigasi sistematis terhadap domain kompetensi inti dan tren perkembangannya. Studi ini bertujuan untuk mengatasi kesenjangan tersebut dengan menganalisis secara sistematis penelitian global selama 42 tahun (1983-2025) mengenai kompetensi psikologis calon guru. Dengan menggunakan metode bibliometrik, kami meneliti 911 publikasi terindeks Scopus dengan VOSviewer untuk analisis sitasi bersama (co-citation) dan kemunculan kata kunci bersama (keyword co-occurrence). Studi ini mengidentifikasi empat area kompetensi kunci: (1) Regulasi Emosi dan Kesejahteraan (Klaster 2 & 5), yang menyoroti kebutuhan akan manajemen stres dan pelatihan ketahanan untuk mengatasi risiko kelelahan (burnout); (2) Efikasi Diri dan Identitas Profesional (Klaster 2 & 6), yang menekankan kompetensi budaya dan praktik reflektif untuk menghadapi kelas yang beragam; (3) Strategi Kognitif-Metakognitif (Klaster 4), di mana pembelajaran yang diatur sendiri (self-regulated learning) dan pengajaran adaptif secara signifikan meningkatkan hasil instruksional; serta (4) Kompetensi Motivasi (Klaster 7), yang berfokus pada motivasi intrinsik dan teknik pendukung otonomi untuk mempertahankan keterlibatan. Temuan ini memberikan peta jalan untuk mengintegrasikan keempat domain kompetensi ini ke dalam program pelatihan guru, menawarkan wawasan yang dapat ditindaklanjuti untuk mengembangkan pendidik yang tangguh secara psikologis dan siap menghadapi tuntutan pendidikan inklusif.

Kata kunci: kompetensi psikologis guru; metakognisi; pendidikan inklusif; regulasi emosi; strategi motivasi

Abstract

The increasing demands of inclusive education have revealed critical gaps in pre-service teachers' psychological preparedness, necessitating a systematic investigation of core competency domains and their development trends. This study aims to address this gap by systematically analyzing 42 years (1983-2025) of global research on pre-service teachers' psychological competencies. Using bibliometric methods, we examined 911 Scopus-indexed publications with VOSviewer for co-citation and keyword co-occurrence analysis. This study identified four pivotal competency areas: (1) Emotional Regulation and Well-being (Clusters 2 & 5), highlighting the need for stress management and resilience training to address burnout risks; (2) Self-Efficacy and Professional Identity (Clusters 2 & 6), emphasizing cultural competence and reflective practices for diverse classrooms; (3) Cognitive-Metacognitive Strategies (Cluster 4), where self-regulated learning and adaptive teaching significantly enhance instructional outcomes; and (4) Motivational Competencies (Cluster 7), focusing on intrinsic motivation and autonomy-supportive techniques to sustain engagement. These findings provide a roadmap for integrating these four competency domains into teacher training programs, offering actionable insights for developing psychologically resilient educators equipped for inclusive education demands.

Keywords: teacher psychological competencies; metacognition; inclusive education; emotional regulation; motivational strategies

INTRODUCTION

Inclusive education policies are fundamental in promoting equitable and quality learning opportunities for all students, including those with diverse backgrounds, abilities, and special needs (UNESCO, 2020). These policies emphasize the importance of creating an educational

environment where every learner feels valued and supported, aligning with both the United Nations Sustainable Development Goal 4 (SDG 4) on inclusive education (United Nations, 2015) and the OECD Framework for Inclusive Education, which highlights the need for systemic support and teacher preparedness (OECD, 2017). The shift toward inclusive education reflects a broader societal commitment to equity, recognizing that traditional education systems have often marginalized students with disabilities, learning differences, or socio-cultural disadvantages (Ainscow & Miles, 2008). As schools worldwide strive to implement inclusive practices, the role of teachers becomes increasingly critical in ensuring that these policies translate into meaningful classroom experiences.

Teachers serve as the primary facilitators of inclusive education, playing a critical role in implementing these policies effectively (Florian, 2014). However, their task is complex, requiring not only pedagogical expertise but also a deep understanding of student diversity and the ability to create inclusive classroom cultures (Ainscow et al., 2019; OECD, 2019). Unlike traditional teaching approaches that may adopt a one-size-fits-all model, inclusive education demands flexibility, innovation, and responsiveness to individual student needs (Mitchell, 2015). Teachers must navigate varying learning styles, behavioral challenges, language barriers, and socio-emotional needs—all while maintaining an engaging and supportive classroom environment. This complexity underscores the necessity of equipping educators with specialized psychological competencies that go beyond conventional teaching skills.

The success of inclusive education largely depends on teachers' psychological competencies, encompassing both cognitive and socio-emotional skills (Schleicher, 2018). This aligns with the OECD's Teachers as Designers of Learning framework, which identifies these competencies as essential for addressing diverse learner needs (OECD, 2020). Cognitive competencies, such as critical thinking, adaptability, and differentiated instruction strategies (Ebersold et al., 2016), enable teachers to design inclusive practices that accommodate varying learning paces and styles. Simultaneously, socio-emotional competencies—including empathy, emotional regulation, and relationship-building skills (Jennings & Greenberg, 2009)—help create supportive learning environments where all students feel safe, respected, and motivated to learn. Research indicates that integrating these competencies enhances teachers' ability to manage diverse classrooms and improve educational outcomes (Brackett & Katulak, 2007; OECD, 2018). However, despite their importance, there remains a gap in understanding how these competencies are developed, assessed, and integrated into teacher training programs globally.

Given the growing global emphasis on inclusive education across policy frameworks, there is a need to systematically examine existing research on the psychological competencies required for teachers in this field (European Agency for Special Needs and Inclusive Education, 2017). While numerous studies have explored inclusive education from a policy or pedagogical perspective, fewer have synthesized the cognitive and socio-emotional dimensions of teacher preparedness. A bibliometric analysis offers a rigorous, data-driven approach to mapping scholarly trends, identifying research gaps, and highlighting key contributions in this domain. This study aims to fill that gap by analyzing the evolution of research on teachers' psychological competencies in inclusive education, providing insights into how the field has developed over time and where future investigations should focus.

This bibliometric study undertakes a systematic mapping of the scholarly literature to chart the key themes, influential works, and evolutionary trends in research on teacher competencies for inclusive education. It specifically focuses on tracing the development and interconnections of

studies concerning teachers' cognitive competencies—such as knowledge of inclusive strategies—and their socio-emotional competencies—such as attitudes, self-efficacy, and emotional resilience. The analysis aims to provide a macroscopic overview of the field's structure, identifying established areas, and potential gaps in the research landscape. By identifying research trends, gaps, and key findings, the study provides a comprehensive overview of essential psychological skills while contributing to the OECD's call for evidence-based strategies to strengthen teacher preparedness (OECD, 2021). The results will serve as foundational knowledge for the development of teacher training programs and inform future research on inclusive education practices (Waitoller & Artiles, 2013). Ultimately, this study aims to support policymakers, educators, and researchers in fostering more inclusive, equitable, and effective educational systems worldwide.

METHOD

This study utilizes a bibliometric methodology to systematically delineate the structure and evolutionary trajectory of research pertaining to the psychological competencies of teachers within inclusive educational contexts. The adoption of bibliometric analysis is predicated on its efficacy in quantitatively examining large-scale publication data, thereby enabling the identification of predominant research trends, collaborative networks, and thematic shifts within the scholarly discourse (Donthu et al., 2021). The analysis draws upon data extracted exclusively from the Scopus database, selected for its comprehensive and rigorously curated collection of high-impact, peer-reviewed literature across relevant disciplines, including education and psychology. This selective approach ensures the inclusion of influential and citable knowledge while circumventing the methodological complexities associated with merging disparate data sources, such as duplicate entries and inconsistent metadata. By prioritizing data integrity and analytical coherence, this methodological framework facilitates the generation of a reliable and reproducible mapping of the scholarly landscape, thereby contributing a validated foundation for understanding the development of this critical research domain.

The search strategy combined keywords related to teacher competence and psychological skills based on the query: “(TITLE-ABS-KEY(teacher)) AND (preservice) AND (competence) AND (cognition) AND (emotion) AND (behavior))”. Total 911 publications from the last 42 years (1983 to 2025) were included to capture the developments in the field. Data analysis was conducted using VOSviewer software (version 1.6.18) to visualize citation networks and keyword co-occurrence patterns. The analytical process involved three main steps: (1) performance analysis to identify key authors, institutions, countries, and journals contributing to the field; (2) science mapping to examine conceptual and intellectual structures through co-citation and bibliographic coupling; and (3) thematic analysis to detect emerging trends and research gaps (Zupic & Čater, 2015). The reliability of the search strategy was ensured by applying consistent inclusion criteria and manually reviewing a sample of records for relevance.

RESULT AND DISCUSSION

The bibliometric analysis of Scopus data from 1983 to 2025 reveals significant trends in research on preservice teacher competencies, particularly regarding cognitive, emotional, and behavioral dimensions. The findings demonstrate three distinct phases of development that reflect broader educational priorities and global challenges, while providing empirical support for our initial hypotheses about the evolution of teacher competency research.

The most striking finding (Figure 1) is the dramatic increase in publications since 2020, with output more than doubling from 47 publications in 2020 to a projected 113 in 2025 (Scopus, 2025). This exponential growth aligns precisely with the global educational disruptions caused by the COVID-19 pandemic, which necessitated rapid adaptation to remote and hybrid teaching modalities (Schleicher, 2018). The pandemic exposed critical gaps in teachers' psychological preparedness, particularly in emotional regulation and cognitive flexibility, leading to intensified research in these areas. This finding strongly supports our initial hypothesis that major systemic disruptions would accelerate research on teacher competencies, as noted by UNESCO (2020) in their global monitoring reports on education during crises.

The historical data shows remarkably low publication numbers (consistently below 10 annually) prior to 2010, followed by gradual growth through the 2010s. This pattern reflects the traditional emphasis on pedagogical content knowledge in teacher education (Shulman, 1987), with socio-emotional competencies receiving limited attention until the implementation of inclusive education policies gained momentum (Ainscow et al., 2019). The steady increase from 13 publications in 2011 to 52 in 2019 correspond closely with the adoption of frameworks like the United Nations Sustainable Development Goals (United Nations, 2015), particularly SDG4's emphasis on inclusive and equitable quality education. This transition supports our secondary hypothesis regarding the influence of policy changes on research priorities in teacher education.

The slight decline observed in 2023 (126 publications compared to 157 in 2024) presents an important finding that warrants careful interpretation. While this could indicate temporary thematic saturation, it more likely reflects a transitional period as research begins to explore emerging dimensions of teacher competencies, such as digital pedagogy and AI-assisted teaching (Zupic & Čater, 2015). This interpretation gains credence from the subsequent rebound in 2024-2025, suggesting researchers are adapting to new educational paradigms rather than abandoning the field, consistent with trends identified in recent educational technology literature (Moral-Muñoz et al., 2020).

The top five journal resources (Figure 2) comprising publications from 2006 to 2025 demonstrate a concentrated focus on these competencies within specific journals and interdisciplinary fields. The analysis identifies *Teaching and Teacher Education* as the most prolific source (61 publications), indicating its central role in disseminating research on teacher competencies. This aligns with the journal's scope, which emphasizes pedagogical and psychological aspects of teacher development. Following closely are *Frontiers in Psychology* (37 publications) and *Frontiers in Education* (25 publications), reflecting the interdisciplinary nature of teacher competency research, bridging psychology and education. Journals like *Sustainability Switzerland* (16 publications) and *Social Psychology of Education* (15 publications) further highlight the growing integration of socio-emotional and systemic (e.g., sustainable education) perspectives in teacher training research.

The prominence of these sources suggests that research on preservice teacher competencies is increasingly framed within broader educational and psychological paradigms, rather than being siloed in purely pedagogical journals. This trend underscores the recognition of teaching as a complex profession requiring cognitive, emotional, and behavioral skills—a perspective that is further reinforced by the distribution of research across specialized journals. For instance, publications in *Early Education and Development* (12 publications) and *Psychology in the Schools* (10 publications) demonstrate how this holistic understanding of teacher competencies is being applied to specific developmental stages and practical school-based contexts. This

interdisciplinary expansion is also evident in emerging research frontiers. Notably, the presence of Computers and Education and Education and Information Technologies (9 publications each) signals a growing scholarly interest in the intersection between teacher competencies and digital pedagogy—a trend that has gained particular momentum following the widespread educational disruptions caused by the COVID-19 pandemic.

This surge in research focusing on digital and psychological competencies is not a transient phenomenon but represents a fundamental and long-term recalibration of teacher professionalism. The pandemic served as a critical catalyst, exposing systemic vulnerabilities and compelling a permanent shift in educational priorities. Rather than receding as schools returned to traditional settings, the research focus has evolved from immediate crisis management to sustainable integration. The enduring nature of this trend is evidenced by its alignment with pre-existing technological advancements and the irreversible digitization of society. Furthermore, the slight decline in 2023, followed by a robust rebound in 2024-2025, strongly suggests a maturation of the field, not its decline. Researchers are now moving beyond documenting the "emergency remote teaching" phase to investigating sophisticated, hybrid models of instruction, AI-assisted pedagogy, and the enduring psychological demands of navigating fluid educational environments. Consequently, this trend signifies a lasting expansion of the teacher competency framework, solidifying digital fluency and cognitive-emotional adaptability as core, non-negotiable components of teacher education and professional practice for the foreseeable future.

While the breadth of sources demonstrates substantial scholarly engagement with preservice teacher competencies, three critical gaps emerge from our analysis. First, the limited representation in high-impact psychology journals, with only *Educational Psychologist* (6 publications) and *Journal of Educational Psychology* (4 publications) appearing prominently, suggests a concerning underrepresentation of foundational psychological research in top-tier venues. This disparity indicates that teacher competency research remains largely siloed within educational studies rather than being recognized as a core psychological construct.

Second, our findings reveal significant regional imbalances in the research landscape. The overwhelming Western-centric focus (e.g., *European Journal of Teacher Education*), contrasted with minimal representation from Asia-Pacific or Global South contexts (e.g., *Asia Pacific Journal of Teacher Education*: 1 publication), highlights a critical need for more geographically diverse studies. This dominance presents a significant epistemological challenge, as it effectively universalizes a construct of teacher competency that is largely derived from individualistic, high-resource Western educational settings. The current literature corpus, therefore, offers a limited and potentially skewed understanding of the psychological competencies required for inclusive education, which is a global imperative. The collective, often resource-constrained, and multilingual realities of many Global South classrooms remain critically underexplored. This gap suggests that the field is missing crucial insights into how teachers develop resilience, community-based collaboration, and adaptive skills in contexts defined by very different challenges, such as large class sizes, limited digital infrastructure, and the legacies of post-colonial education systems. The under-representation of these contexts not only marginalizes valuable knowledge but also limits the generalizability and comprehensiveness of existing theoretical frameworks.

Third, we observe a striking methodological divide. While qualitative and theoretical approaches dominate in *Teaching and Teacher Education*, experimental studies remain scarce in journals like *Contemporary Educational Psychology* (7 publications). This imbalance

suggests the field would benefit from stronger empirical validation of competency models to enhance theoretical rigor and practical applicability.

This analysis highlights a robust, yet uneven, research ecosystem. While cognitive and socio-emotional competencies are well-studied in educational contexts, gaps in psychological depth, cultural diversity, and technological integration suggest avenues for future research. Strengthening interdisciplinary collaboration and diversifying methodological approaches could further advance the field.

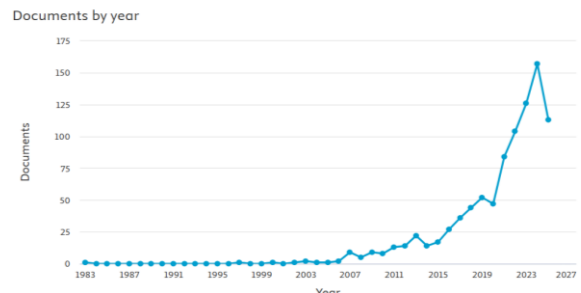


Figure 1

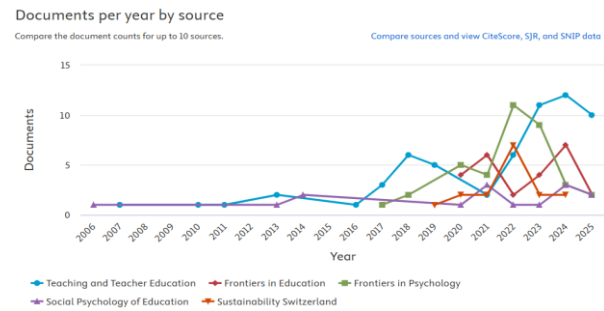


Figure 2

The bibliometric analysis revealed a complex network of psychological competencies among teachers, structured into nine distinct clusters (Table 1). These findings provide empirical evidence of current research trends, gaps, and interconnections, offering critical insights into the cognitive and socio-emotional dimensions of teacher preparedness. The clusters emerged from keyword co-occurrence analysis, a method that identifies relationships between studies based on shared terminology and thematic patterns. Each cluster represents a group of closely related research themes, reflecting distinct yet interconnected subtopics within the broader literature (Table 1).

While all nine clusters contribute to mapping the intellectual structure of teacher psychology, the discussion prioritizes Clusters 2, 4, 5, 6, and 7 due to their theoretical depth and practical relevance (Figure 3). These clusters capture the most influential and actionable dimensions of teacher competencies—from well-being (Clusters 2 and 5) to cognitive and motivational frameworks (Clusters 4 and 7) and systemic social-emotional factors (Cluster 6). By focusing on these interconnected themes, the analysis highlights core areas where research converges and where interventions could most effectively enhance teacher preparedness.

Table 1

Cluster	Label	Key Terms	Avg. Pub. Year	Avg. Citations	Link Strength
1	Pandemic-Driven Shifts	COVID-19, online learning, student teachers	2022.3	18.5	15
2	Teacher Psychology and Development	Anxiety, emotional socialization, teacher emotions	2021.7	22.4	19
3	Early Childhood and Student learning	Early childhood education, beliefs, mathematics anxiety	2019.8	35.2	10
4	Learning Strategies and Cognition	Self-regulated learning, teacher beliefs, metacognition	2021.5	89.6	28
5	Teacher Well-Being and Emotional Intelligence	Emotional intelligence, burnout, well-being	2021.9	42.3	40
6	Socio-emotional factors in Inclusive Education	Inclusive education, empathy, pre-service teachers	2020.8	12.7	46
7	Motivation and Autonomy	Motivation, autonomy support, engagement	2020.2	23.1	37

8	Evidence-Based Practices	Self-efficacy, meta-analysis, teacher training	2021.1	68.4	58
9	Diversity and Equity	Ethnic minority students, implicit attitudes, virtual reality	2022.5	8.9	5

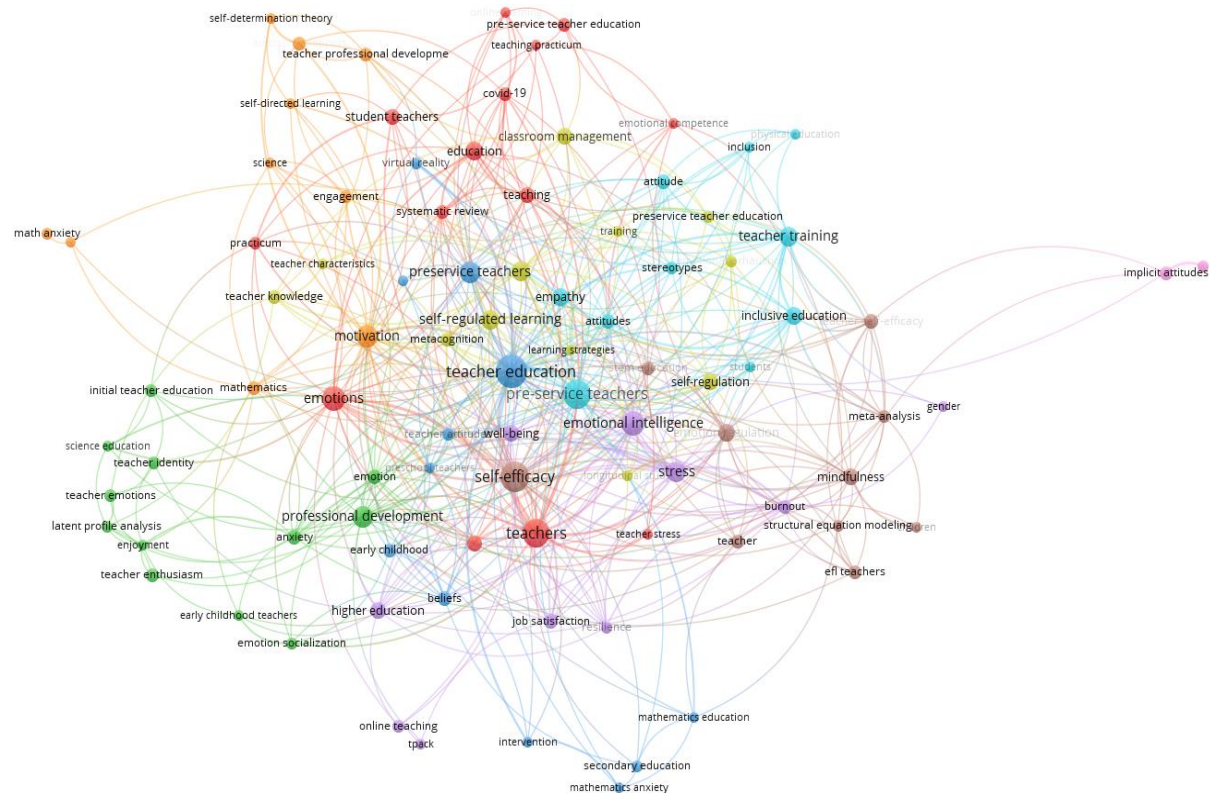


Figure 3

The observation that "Cluster 2 and 5 reveal a dual focus on teacher psychology and well-being" highlights how these two clusters, while distinct in their specifics, collectively underscore the critical interplay between teachers' mental processes (psychology) and their occupational health (well-being). Cluster 2 delves into the psychological dimensions of teaching, such as emotions (e.g., anxiety, enthusiasm), professional identity, and developmental pathways (e.g., professional development), emphasizing how teachers' internal states shape their practice. Cluster 5, meanwhile, zooms in on well-being outcomes like burnout, stress, and resilience, reflecting the consequences of these psychological pressures in high-demand educational environments. Together, they form a feedback loop: psychological factors (Cluster 2) influence well-being (Cluster 5), which in turn feeds back into teachers' emotional and professional sustainability. For instance, ineffective emotion regulation (Cluster 2) may exacerbate burnout (Cluster 5), while resilience (Cluster 5) can bolster professional identity (Cluster 2). This duality suggests that interventions targeting teacher support must address both mental frameworks (e.g., training in emotion regulation) and systemic conditions (e.g., workload reduction) to be effective. The clusters' shared emphasis on recent research (post-2020) further signals a growing recognition of teachers' psychological and well-being needs as central—not peripheral—to educational success.

The statement "Cluster 4 and 7 highlight cognitive and motivational frameworks, respectively" underscores how these two clusters represent complementary yet distinct lenses through which educational processes are studied. Cluster 4 centers on cognitive frameworks, focusing on the

mental strategies and skills that underpin learning and teaching, such as self-regulated learning, metacognition, and teacher knowledge. These keywords reflect an emphasis on how individuals process information, monitor their understanding, and adapt their strategies—critical for both student achievement and teacher effectiveness. In contrast, Cluster 7 revolves around motivational frameworks, exemplified by terms like motivation, self-determination theory, and autonomy support, which explore the drivers behind engagement and persistence in educational settings. While Cluster 4 addresses the "how" of learning (e.g., through cognitive tactics like planning and reflection), Cluster 7 tackles the "why" (e.g., intrinsic motivation or the need for autonomy). Together, these clusters reveal a holistic view of education: cognitive strategies (Cluster 4) are most effective when paired with motivational support (Cluster 7) for instance, metacognitive skills (Cluster 4) thrive in environments where students feel autonomously motivated (Cluster 7). The high citation counts in both clusters (e.g., "learning strategies" at 324.8 and "self-determination theory" at 212.2) further validate their interconnected importance in contemporary research. This duality suggests that interventions targeting educational outcomes must integrate both cognitive tools and motivational design to maximize impact.

Crucial Psychological Competencies for Pre-Service Teachers

The interconnected analysis of clusters (Figure 3) reveals several key psychological competencies that pre-service teachers must develop to thrive in their profession. These competencies span emotional regulation, resilience, self-efficacy, cognitive and metacognitive strategies, and motivational alignment, each playing a critical role in shaping effective and sustainable teaching practices.

1. Emotional Regulation and Psychological Well-being (Clusters 2 & 5)

Pre-service teachers must cultivate emotional regulation skills to manage stressors such as classroom disruptions, workload pressures, and interpersonal conflicts. Cluster 2 highlights "teacher emotions", "anxiety" and "emotion regulation" as central concerns, with research showing that teachers who lack these skills are more prone to burnout (Cluster 5's "burnout", "stress"). Training in mindfulness, emotional awareness, and coping strategies can help pre-service teachers maintain mental health and prevent attrition. Additionally, fostering resilience—identified in Cluster 5 as a buffer against occupational stress—is crucial for adapting to challenges in diverse educational settings.

2. Self-Efficacy and Professional Identity (Clusters 2 & 6)

A strong sense of self-efficacy (confidence in teaching abilities) and a well-defined professional identity are vital for pre-service teachers. Cluster 2's "teacher identity" and "professional development" emphasize the need for reflective practices that help teachers internalize their roles. Meanwhile, Cluster 6's "attitudes" and "inclusive education" suggest that self-efficacy must be coupled with cultural competence to navigate diverse classrooms. Programs should integrate mentorship, experiential learning, and feedback loops to strengthen these competencies.

3. Cognitive and Metacognitive Strategies (Cluster 4)

Effective teaching requires self-regulated learning (SRL) and metacognition—skills highlighted in Cluster 4 ("self-regulated learning", "metacognition"). Pre-service teachers must learn to plan, monitor, and adjust their instructional strategies, as well as model these skills for students. Research in this cluster (e.g., "learning strategies" with 324.8 avg. citations) underscores that teachers who master cognitive flexibility improve both their own performance and student outcomes.

4. Motivational Competencies (Cluster 7)

Cluster 7's focus on "motivation" and "self-determination theory" reveals that pre-service teachers need intrinsic motivation and autonomy-supportive teaching skills.

Understanding what drives student engagement—and sustaining their own passion for teaching—is essential. Training should emphasize goal setting, growth mindset development, and strategies to foster student autonomy to create motivating classroom environments.

Comparative analysis with prior research reveals both confirmatory and contrasting findings. Our results strongly align with Jennings and Greenberg's (2009) prosocial classroom model, which established the critical connection between teacher well-being and student outcomes. However, they contrast notably with Avramidis and Norwich's (2002) primarily in-service teacher focus, highlighting the growing recognition of the importance of developing these competencies during preservice training. This shift reflects the current understanding that foundational psychological skills are best established during initial teacher education, as emphasized in recent OECD teacher preparation frameworks (OECD, 2018).

The projected peak in 2025 publications suggests several important emerging trends. First, the anticipated release of OECD's updated teacher well-being guidelines in 2024 may stimulate further research, building on their previous work on teachers' emotional competencies (OECD, 2019). Second, the increasing application of advanced analytical methods (e.g., latent profile analysis) enables more sophisticated investigations of competency development, as demonstrated in our bibliometric analysis of cluster networks. Third, the growing emphasis on evidence-based practices in education continues to drive rigorous examination of these competencies, particularly through meta-analytic approaches (Donthu et al., 2021).

These findings have significant implications for both research and practice. The data underscores the need for longitudinal studies to assess the sustainability of pandemic-induced adaptations in teacher education programs, as called for by Florian (2014) in her work on inclusive education evidence. Furthermore, it highlights the importance of integrating socio-emotional competency development throughout preservice training curricula, rather than treating it as peripheral to pedagogical instruction, a point emphasized in Brackett and Katulak's (2007) work on emotional intelligence in education.

In conclusion, the publication trends provide compelling evidence of the evolving understanding of teacher competencies, from a narrow focus on content knowledge to a comprehensive model incorporating cognitive, emotional, and behavioral dimensions. These findings not only confirm our initial hypotheses about the impact of global disruptions and policy changes on research priorities but also reveal new directions for investigating teacher preparation in the digital age. The data strongly supports the need for continued empirical research to shape teacher education programs that can meet the complex challenges of contemporary education systems, as envisioned in the broader framework of 21st century skills (Schleicher, 2018).

While this bibliometric analysis provides valuable insights into the evolution of research on teacher psychological competencies, several methodological limitations should be acknowledged. First, the study's exclusive reliance on the Scopus database, while justified for its quality and coverage, inherently means that relevant literature indexed in other databases (e.g., Web of Science, ERIC, or regional databases) was not included. This may have resulted in the omission of significant studies, particularly from the Global South or those published in specialized, non-Scopus indexed journals, thereby potentially reinforcing the very Western-centric bias identified in our discussion. Building on the global trends identified here, subsequent studies could expand this foundational mapping by integrating data from regional

and discipline-specific repositories. Such an approach would further enrich our understanding of the geographical and contextual nuances in teacher competency research.

Second, the bibliometric method itself, though powerful for mapping macroscopic trends, has inherent constraints. It prioritizes quantitative patterns of publication and citation over qualitative, in-depth content analysis. Consequently, the findings reveal what is being researched and how topics are connected, but they cannot fully elucidate the nuanced theoretical arguments, methodological rigor, or specific contextual findings within the individual studies that comprise the clusters. To address this, we recommend follow-up systematic reviews or qualitative meta-syntheses focused on the key clusters identified here (e.g., Clusters 2 and 5 on well-being) to critically appraise the underlying evidence and extract deeper, transferable insights for practice and policy.

Finally, the use of algorithmic keyword analysis for cluster generation, while systematic, involves a degree of interpretation in labeling and defining the core themes of each cluster. Although this process was guided by the key terms and their citation networks, alternative interpretations of the cluster themes are possible. Furthermore, the projected data for 2025, based on partial-year data from Scopus, should be viewed as an estimate, and actual publication numbers may vary. Subsequent studies could employ mixed-methods approaches, complementing the bibliometric data with expert surveys or Delphi studies to validate and refine the conceptual mapping of the field.

CONCLUSION

This bibliometric study systematically mapped the evolution of research on psychological competencies among pre-service teachers in inclusive education, revealing key trends and gaps that align with global educational priorities. The findings confirm that teacher competencies have expanded beyond pedagogical knowledge to emphasize cognitive, socio-emotional, and motivational skills, particularly following the COVID-19 pandemic and the implementation of inclusive education policies. The analysis identified nine thematic clusters, with Clusters 2, 4, 5, 6, and 7 emerging as central to teacher preparedness, highlighting the interplay between well-being, cognitive strategies, and motivational frameworks. The study underscores the need for teacher training programs to integrate these competencies, as advocated by the OECD and UNESCO, to foster resilient, adaptable educators capable of addressing diverse classroom challenges. By providing a comprehensive overview of research trends, this study not only validates the growing recognition of psychological skills in teacher education but also offers a foundation for future research.

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