

Teaching Performance as a Multilevel HRM Outcome in Educational Organizations: A Systematic Review and Bibliometric Synthesis

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Abstract: Teaching performance is an organizationally embedded outcome shaped by teacher resources, organizational support, appraisal, and technological conditions. This hybrid systematic review combined PRISMA-guided study selection, bibliometric analysis, and a Theory–Context–Characteristics–Methodology (TCCM) synthesis. A Scopus search conducted on 13 September 2026 using the phrase “Teaching Performance” identified 2,071 records; sequential filtering yielded 75 English-language journal articles published from 2021 to 2026. Bibliometric mapping was conducted with Bibliometrix through the Biblioshiny interface, while TCCM coding was restricted to information explicitly reported in titles, abstracts, author keywords, and bibliographic metadata. The corpus comprised 245 authors and 40 sources. The findings linked teaching performance with psychological and professional resources, leadership and organizational support, digital competence and appraisal systems, and context-specific performance expectations. Because these domains are usually examined separately and much of the evidence is cross-sectional, the review proposes a multilevel HRM framework and prioritizes longitudinal, multisource, multilevel, and responsibly AI-supported research.

Keywords: Teaching performance, Performance management, Human resource management, Systematic literature review, Bibliometric analysis, Digital transformation

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INTRODUCTION

Teaching performance is a central concern for educational organizations because instructional quality depends on more than subject knowledge or classroom technique. Recent studies describe teaching performance through dimensions such as teaching ability, teaching behavior, teaching effects, commitment, professionalism, learner-focused practice, and management of the learning process (Abdurahim-Salain, 2024; Xin et al., 2022). These dimensions position performance at the intersection of professional competence and the organizational conditions in which teaching is enacted. Student ratings, supervisory judgments, institutional appraisal, and classroom evidence can each capture part of this work, but none represents the construct in its entirety (Burić et al., 2023; Shaath & Abed, 2024). Treating teaching performance as a single score therefore risks obscuring the processes through which educational institutions support, evaluate, and improve instructional work.

One stream of recent research has concentrated on teachers' psychological and professional resources. Personality, emotional competence, self-efficacy, self-regulation, motivation, resilience, and job satisfaction have been examined in relation to teaching quality, instructional engagement, or perceived performance (Burić et al., 2023; Huang, 2022; Lu & Ishak, 2022; Romero-García et al., 2022; Zaimoğlu & Dağtaş, 2025). Recent longitudinal and synthesis studies reinforce the importance of self-efficacy and job satisfaction, whereas pandemic-era evidence cautions that changes in reported teaching quality do not necessarily correspond to teacher well-being in a simple way (Burić et al., 2024; Sacré et al., 2023; Wartenberg et al., 2023). Ye et al. (2024) connected emotional competence and teacher self-efficacy with preschool teachers' performance, while Jiang et al. (2024) showed how self-efficacy changed during an extended professional-development program. These studies indicate that teacher-level resources are developed and expressed within specific professional environments; an individual-level explanation is therefore incomplete when organizational support, work design, and institutional expectations remain outside the analytical frame.

A second body of evidence places teaching performance within organizational arrangements. Leadership, pedagogical supervision, organizational structure, professional development, welfare, workload, and job satisfaction have been associated with how teachers perform and adapt their work (Al-Zoubi et al., 2023; Li et al., 2023; Murwaningsih & Fauziah, 2023; Neyra et al., 2021). Complementary studies similarly link perceived organizational support and instructional leadership with teacher performance and self-efficacy, while school conditions shape opportunities for professional learning (Elfira et al., 2024; Li et al., 2025; Rahman, 2022). Research on team-based and hierarchical structures further shows that teacher performance is embedded in systems of coordination, authority, and collaboration rather than produced by individual capability alone (Li et al., 2023). This organizational perspective makes teaching performance directly relevant to human resource management because capability development, feedback, support, and work arrangements are institutional responsibilities as well as individual concerns.

Digital transformation has added another layer to this relationship. Online and blended teaching, electronic appraisal, digital leadership, data-based evaluation, and artificial intelligence now influence how instruction is delivered, monitored, and interpreted (Bervell et al., 2024; Lin et al., 2022; Uyun, 2023; Xin et al., 2025). Broader higher-education research also shows substantial heterogeneity in teachers' digital competencies and identifies technological pedagogical content knowledge as a mechanism linking AI competence with teaching performance (Saltos-Rivas et al., 2023; Tan et al., 2025). Recent work has also examined AI-supported teaching-performance assessment and decision support for faculty management (Ersozlu et al., 2026; Rosales-Anzola et al., 2026). These developments do not justify treating technology adoption as improved teaching performance in itself; its contribution depends on teacher competence, behavioral adaptation, organizational support, system acceptance, and the way digital information is incorporated into professional judgment.

The empirical base is also heterogeneous in how teaching performance is measured and where it is studied. Studies use teacher self-reports, student evaluations, peer or supervisor ratings, institutional forms, classroom evidence, and digital appraisal systems, each of which represents a different evidentiary perspective (Bazán-Ramírez et al., 2021; Bervell et al., 2024; Vargas-Madriz & Nocente, 2023; Vereda-Alonso et al., 2024). Measurement studies further show that teaching-quality instruments require context-specific validation rather than automatic transfer across populations or disciplines (Jiménez-Jaraba et al., 2025; Sánchez-Cabrero et al.,

2024). At the same time, the literature spans early-childhood, primary, secondary, vocational, higher, medical, maritime, physical, and language education (Čakāne et al., 2025; Friend et al., 2026; Yuen et al., 2022; Zhang et al., 2025). This variation broadens the field but complicates cumulative interpretation because the meaning and evidence of teaching performance differ across educational settings.

Within the literature assembled for this review, three limitations are especially visible. First, psychological, organizational, technological, and evaluative perspectives are often investigated as separate streams, limiting explanation of how teacher resources interact with leadership, professional support, appraisal, and digital conditions. Second, a substantial share of the evidence relies on cross-sectional or single-source designs, while longitudinal, intervention, and multisource studies are less common, even though qualitative and quasi-experimental work demonstrates the value of observing change and implementation processes (Jiang et al., 2024; Vargas-Madriz & Nocente, 2023; Zhang et al., 2025). Research on professional development also cautions against assuming a fixed set of universally effective features and shows that organizational conditions shape teacher learning (Asterhan & Lefstein, 2024; Hayes et al., 2024). Third, theoretical foundations and measurement choices are not reported consistently across studies, making apparently similar performance outcomes difficult to compare directly. These limitations create a need for a review that combines quantitative mapping with structured interpretation rather than treating publication patterns and substantive evidence as equivalent forms of knowledge.

This study addresses these limitations through a hybrid systematic literature review that combines PRISMA-guided selection, bibliometric analysis, and the Theory–Context–Characteristics–Methodology framework (Donthu et al., 2021; Page et al., 2021; Paul et al., 2024). The review examines a bounded corpus of 75 Scopus-indexed, English-language, open-access journal articles published from 2021 to 2026 and interprets teaching performance as a potential multilevel HRM outcome rather than solely as an individual teacher attribute. Its theoretical contribution is to connect teacher resources with organizational support, performance-management processes, digital technologies, and educational-ecosystem conditions while preserving the distinction between evidence reported in the source studies and the authors' conceptual synthesis. Its practical contribution is a framework for identifying where performance constraints may arise and which forms of evidence are required before organizational or technological interventions are justified. The review is guided by four research questions.

RQ1. How has research on teaching performance developed in terms of publication patterns, influential contributions, conceptual themes, and geographical collaboration?

RQ2. Which theories, educational contexts, teacher and organizational characteristics, and methodological approaches characterize the selected teaching-performance literature?

RQ3. How does the selected literature connect teacher capabilities, motivation, professional support, leadership, performance appraisal, and digital conditions with teaching performance across individual and organizational levels?

RQ4. Which theoretical, contextual, measurement, and methodological gaps should guide future HRM research on teaching performance in educational organizations?

LITERATURE REVIEW AND CONCEPTUAL FOUNDATION

Definition and scope of teaching performance

Teaching performance refers to the enacted quality of teachers' professional work in preparing, delivering, regulating, and evaluating instruction within a particular educational

setting. In the reviewed corpus, the construct includes content knowledge, teaching skills, contextual knowledge, learner-focused teaching, professionalism, commitment, subject-matter expertise, support for independent learning, and management of the learning process (Abdurahim-Salain, 2024; Neyra et al., 2021). Xin et al. (2022) organize teaching-performance evaluation around teaching ability, teaching behavior, and teaching effects. These formulations indicate that performance concerns what teachers are able to do, how they enact their work, and what forms of instructional evidence are produced. The construct is therefore broader than any single rating source or classroom behavior.

Teaching performance overlaps with teacher performance, teaching quality, and teaching effectiveness, but the terms should not be treated as fully interchangeable. Teaching quality emphasizes the quality of instructional practice, whereas teaching effectiveness more directly concerns the attainment of intended educational outcomes. Teaching performance can incorporate professional behavior, instructional competence, work management, and evidence of teaching effects, depending on the original study's operational definition. Student evaluations, self-reports, peer ratings, supervisory judgments, and institutional appraisal can therefore be treated as sources of performance evidence rather than equivalent measures of the same phenomenon (Burić et al., 2023; Shaath & Abed, 2024; Vargas-Madriz & Nocente, 2023). This distinction is retained throughout the review to avoid collapsing conceptually different outcomes into one category.

The scope of teaching performance has expanded as educational delivery has diversified. The selected studies include conventional classrooms, online instruction, blended learning, flexible teaching, inclusive education, and AI-supported or digitally mediated environments (Čakāne et al., 2025; Talosa et al., 2025; Tran & Truong, 2026; Uyun, 2023). In these settings, digital competence and technological access become relevant only when they are translated into pedagogically meaningful practice. Technology is therefore treated as an enabling or constraining condition rather than as teaching performance itself. This boundary is important for interpreting studies that examine technology acceptance, digital leadership, or appraisal systems alongside teaching outcomes.

Multilevel HRM perspective

At the individual level, teaching performance is associated with professional capability and psychological resources. Studies in the corpus examine personality, emotional competence, self-efficacy, motivation, self-regulation, resilience, and intercultural or digital competence (Burić et al., 2023; Guo & Laokulrach, 2024; Huang, 2022; Lu & Ishak, 2022; Ye et al., 2024). These resources can shape how teachers interpret instructional demands, regulate effort, respond to feedback, and adapt practice. Their role should nevertheless be interpreted as context dependent because the reviewed studies differ in population, educational level, outcome definition, and design. The present review therefore treats individual resources as one analytical level rather than as sufficient explanations of performance.

At the organizational level, leadership, supervision, professional development, work structure, welfare, job satisfaction, and access to instructional resources form the environment in which individual capability is enacted. Creative and transformational leadership have been examined in relation to teaching performance and faculty engagement, while pedagogical supervision links institutional expectations with classroom practice (Al-Zoubi et al., 2023; Matos & Kasztelnik, 2021; Neyra et al., 2021). Organizational-structure research similarly shows that coordination and authority arrangements are related to teacher performance (Li et al., 2023). Professional attitude, welfare, development opportunities, and job satisfaction extend this

perspective to employment conditions and support systems (Murwaningsih & Fauziah, 2023). These studies support an HRM interpretation in which teaching performance is organizationally embedded rather than solely individually possessed.

The educational-ecosystem level includes policy expectations, institutional standards, disciplinary requirements, technological infrastructure, appraisal arrangements, and stakeholder feedback. Student evaluations and electronic appraisal systems connect teachers' work with institutional quality-assurance processes, although participation, acceptance, and response patterns affect how that information should be interpreted (Bervell et al., 2024; Vargas-Madriz & Nocente, 2023; Vereda-Alonso et al., 2024). Educational context also matters because teaching roles and performance criteria differ across preschool, school, university, medical, maritime, physical, and language-education settings (Friend et al., 2026; Yuen et al., 2022; Zhang et al., 2025). A multilevel framework must therefore distinguish teacher resources, organizational conditions, and ecosystem influences while examining how they may interact. Figure 1 summarizes this baseline conceptual structure.

Digitalization, appraisal, and contextual variation

Digitalization cuts across the three analytical levels because it changes both instructional practice and the infrastructure of performance management. Blended-learning research identifies technostress as a possible constraint on teaching-learning performance, whereas digital-leadership studies connect organizational direction with teachers' digital competence and behavioral adaptation (Uyun, 2023; Xin et al., 2025). Big-data and electronic appraisal systems extend the amount and speed of performance information available to institutions (Bervell et al., 2024; Xin et al., 2022). These systems may improve access to feedback, but the reviewed evidence does not support interpreting more data as better performance by itself. Their value depends on data quality, user acceptance, pedagogical interpretation, and the organizational use of the resulting information.

Artificial intelligence extends this issue from digital delivery to automated or semi-automated assessment and decision support. Recent studies have examined human-AI moderation in teacher-performance assessment, AI-supported faculty-performance management, and AI adoption in higher education (Ersozlu et al., 2026; Rosales-Anzola et al., 2026; Tran & Truong, 2026). Responsible-AI research in higher education emphasizes explainability, validation, human oversight, and institutional governance rather than unrestricted automation (Syahrudin et al., 2025). Within this review, AI is therefore interpreted as part of the sociotechnical environment surrounding teaching performance. It is not treated as an independent determinant of instructional quality.

Measurement and context remain closely connected to these technological changes. A performance measure based on student evaluation, teacher self-report, supervisor judgment, or automated text analysis may capture different aspects of instructional work and may be affected by different sources of bias. Psychometric research in the corpus reinforces the need to validate instruments for the population and educational setting in which they are used (Bazán-Ramírez et al., 2021; Jiménez-Jaraba et al., 2025; Sánchez-Cabrero et al., 2024). For that reason, the multilevel framework in Fig. 1 is descriptive rather than causal and does not assume that evidence from one educational sector transfers directly to another. It provides the conceptual basis for the bibliometric mapping and TCCM synthesis that follow.

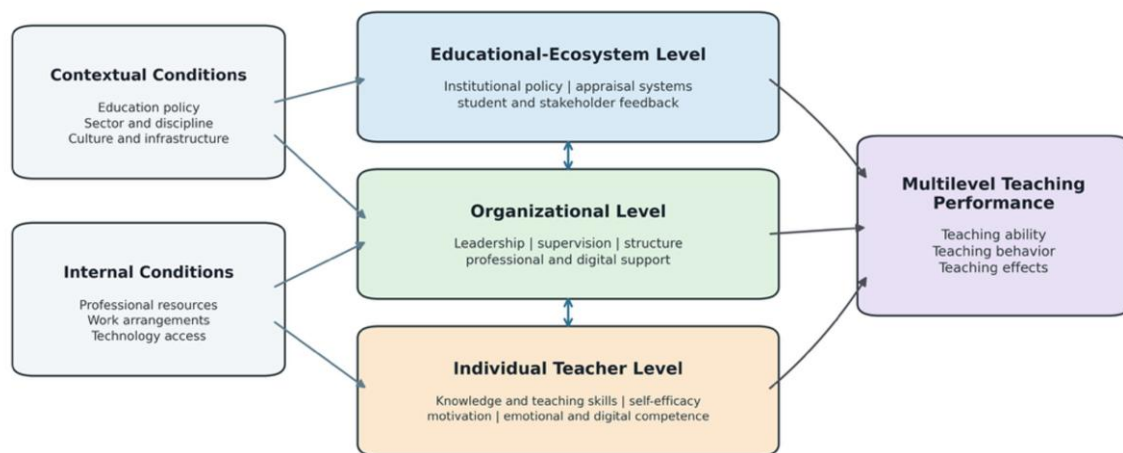


Figure 1. Baseline multilevel framework of teaching performance.

Source: authors' synthesis based on the 75-article Scopus corpus and Biblioshiny report (2026)

METHOD

This study used a hybrid review design that combined a systematic literature review, bibliometric analysis, and a Theory–Context–Characteristics–Methodology (TCCM) synthesis. The systematic component documented how records were identified and screened, the bibliometric component mapped publication and conceptual patterns, and the TCCM component organized explicitly reported theoretical, contextual, substantive, and methodological characteristics. The review followed the PRISMA 2020 reporting logic for transparent study selection and established bibliometric guidance for management research (Donthu et al., 2021; Page et al., 2021). Because the study analyzed published bibliographic records rather than human participants, it did not involve a physical research site, participant recruitment, or psychometric instruments.

Data source and search strategy

Scopus was used as the sole bibliographic database because its exported records contained the metadata required for bibliometric mapping, including authors, titles, abstracts, publication years, source titles, author keywords, affiliations, cited references, citation counts, digital object identifiers, and Scopus EIDs. The search was conducted on 13 September 2026 using the keyword phrase “Teaching Performance” and returned 2,071 records. The recorded year filter was 2021–2027, which reduced the set to 933 records; because the search occurred in September 2026, no 2027 publication entered the final corpus. Restricting the subject areas to Psychology and Business, Management and Accounting produced 149 records. Subsequent filters retained journal articles ($n = 131$), English-language records ($n = 111$), and records classified as All Open Access ($n = 84$).

Eligibility criteria and screening

The journal article was the unit of analysis. Records were eligible when they were indexed in Scopus, fell within the recorded publication-period filter, were categorized under Psychology or Business, Management and Accounting, were classified as journal articles, were written in English, were available under the All Open Access category, and had a substantive relationship with teaching performance or a closely related teacher-performance construct. Relevance was established when teaching performance functioned as the focal topic, an explanatory factor, an evaluative dimension, or a substantive organizational context; records in which the search phrase

appeared only incidentally were excluded. The final relevance screening excluded nine of the 84 records and produced a corpus of 75 articles. The complete sequence is shown in Fig. 2.

Corpus formation and quality control

Corpus quality control was based on predefined bibliographic and substantive eligibility criteria rather than journal quartile, ABDC ranking, or citation count. The final corpus contained 75 articles published from 2021 to 2026 across 40 source titles. Metadata were complete for authors, titles, abstracts, affiliations, cited references, digital object identifiers, source titles, languages, publication years, document types, and total citations. Author keywords were unavailable for one article and Keywords Plus were unavailable for 72 articles, so the conceptual analyses prioritized author keywords and used the merged keyword field only where appropriate. Scopus indexing was treated as a source of bibliographic consistency, not as evidence that all included studies had equivalent methodological quality; no separate risk-of-bias or study-quality score was applied in the documented protocol. References cited for conceptual or methodological context outside the selected corpus were not included in bibliometric counts or TCCM coding.

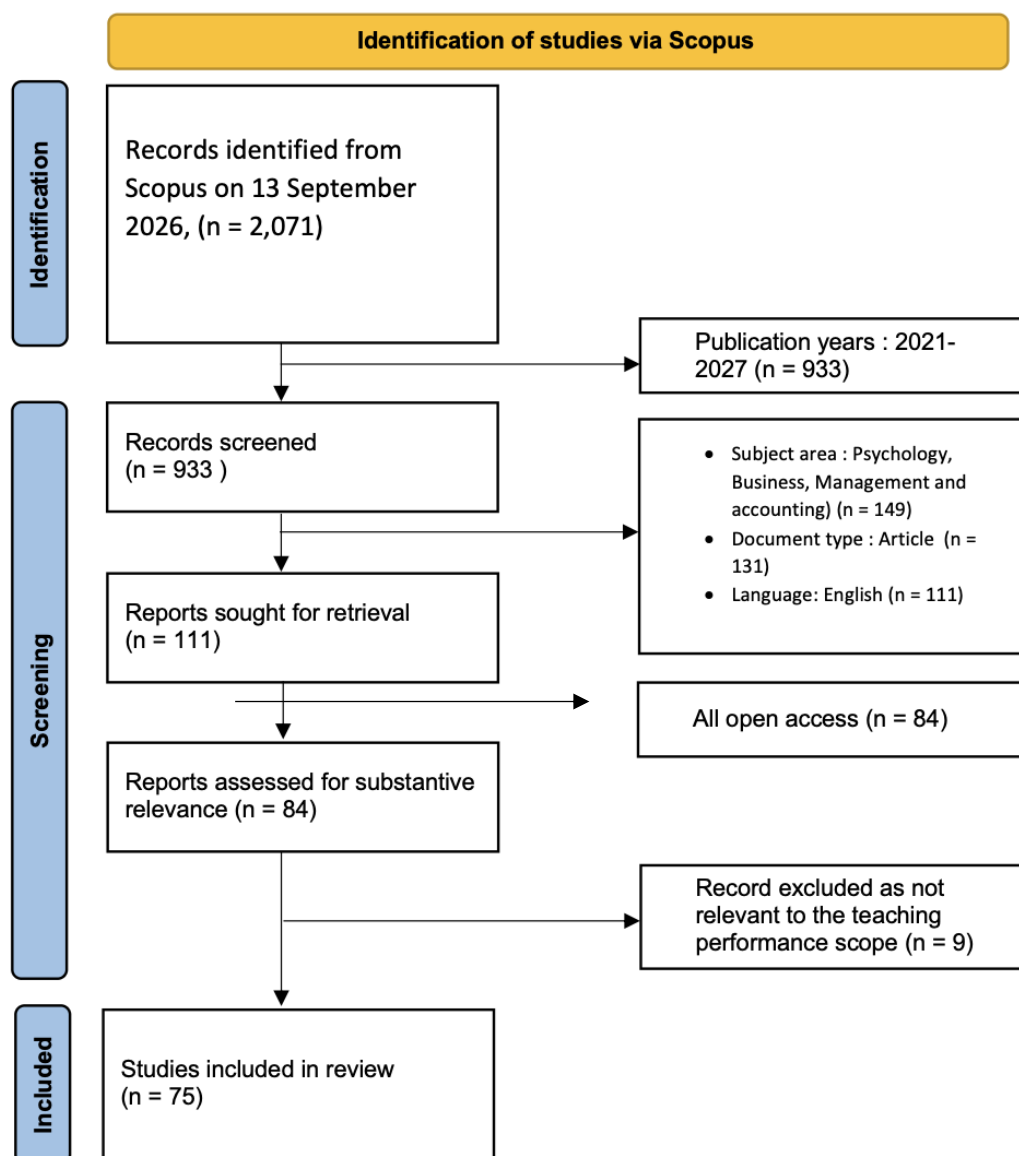


Figure 2. PRISMA-based sequential search and screening protocol. Source: authors' analysis based on the documented Scopus search and relevance-screening record (2026).

Bibliometric analysis

Bibliometric analysis was conducted with the Bibliometrix R package through the Biblioshiny interface. Performance analysis covered annual scientific production, source productivity, authorship patterns, citation performance, affiliations, and country contributions. Science mapping examined author-keyword frequencies, temporal keyword patterns, thematic structure, and keyword co-occurrence. The thematic map used a minimum frequency of two and Louvain clustering without stemming, while keyword-network thresholds were selected to balance conceptual coverage and readability within the 75-document corpus. Bibliometric outputs were checked against the Scopus export and Biblioshiny main-information tables before interpretation (Aria & Cuccurullo, 2017; Donthu et al., 2021).

TCCM synthesis

The second analytical phase applied the TCCM framework as a structured interpretive synthesis rather than as an automated Biblioshiny output (Paul & Rosado-Serrano, 2019; Paul et al., 2024). The Theory dimension recorded formal theories or theoretical frameworks only when they were explicitly named. Context mapped geographical, institutional, educational, and professional settings. Characteristics organized teacher-level, instructional, organizational, evaluative, and technological factors associated with teaching performance, while Methodology classified reported research designs, data sources, measures, and analytical procedures. Coding was restricted to information explicitly available in titles, abstracts, author keywords, and bibliographic metadata; elements not reported in those sources were classified as “not reported” rather than inferred.

Analytical integrity and AI-assisted manuscript preparation

The two analytical phases were kept distinct during interpretation. Bibliometric proximity, keyword co-occurrence, citation frequency, and country productivity were treated as descriptive or relational patterns rather than as evidence of causal relationships or study quality. TCCM interpretation was used to explain what was explicitly represented in the selected corpus, while the multilevel HRM framework was developed as an authors’ synthesis that requires empirical validation. Because the TCCM stage relied primarily on bibliographic records and abstracts, claims about theoretical or methodological absence were limited to what was reported in those records. This boundary was retained when formulating the discussion and research agenda.

ChatGPT was used during manuscript preparation for English-language editing, structural reorganization, consistency checking, and drafting support. It was not used to retrieve articles, determine study eligibility, conduct the Bibliometrix or Biblioshiny analyses, generate or alter quantitative results, or make final interpretive decisions. All AI-assisted text was reviewed by the authors against the Scopus dataset, Biblioshiny report, PRISMA screening record, and cited literature. The authors retained responsibility for the accuracy, interpretation, integrity, and final approval of the manuscript, consistent with the principle of human oversight in the use of generative AI for education and research (Miao & Holmes, 2023).

RESULTS AND DISCUSSION

Results

The final corpus comprised 75 Scopus-indexed journal articles published from 2021 to 2026 across 40 sources. The results are reported in two stages to match the review design. The first stage presents bibliometric performance and science-mapping results relevant to RQ1,

including publication output, source concentration, citation patterns, authorship, geographical distribution, and keyword structures. The second stage presents the TCCM synthesis relevant to RQ2–RQ4 by organizing the explicitly reported theoretical foundations, contexts, characteristics, and methods of the selected studies.

Bibliometric analysis

Publication profile and journal outlets

The bibliometric component identified 75 Scopus-indexed articles published between 2021 and 2026 across 40 distinct journal outlets (see Table 1). *Frontiers in Psychology* led the distribution with 10 articles, followed by *Education Sciences* with nine articles, *International Journal of Education and Practice* with six articles, *Environment and Social Psychology* with five articles, and *Journal of Education and e-Learning Research* with four articles. The first five outlets collectively published 34 articles, representing 45.33% of the corpus. The remaining 41 articles were distributed across 35 journal outlets, indicating that teaching-performance research was not concentrated exclusively within a small group of sources.

Table 1. Publication sources in teaching-performance research. Source: authors' analysis based on the Biblioshiny report (2026)

Publication titles	Count	Bradford zone
Frontiers in Psychology	10	Zone 1
Education Sciences	9	Zone 1
International Journal of Education and Practice	6	Zone 1
Environment And Social Psychology	5	Zone 1
Journal of Education and E-Learning Research	4	Zone 2
Journal of Education and Learning	3	Zone 2
Social Sciences and Humanities Open	3	Zone 2
Behavioral Sciences	2	Zone 2
Psychology in the Schools	2	Zone 2
Australasian Journal of Early Childhood	1	Zone 2
Business Ethics and Leadership	1	Zone 2
Computers in Human Behavior Reports	1	Zone 2
Contemporary Educational Technology	1	Zone 2
Critical Perspectives on Accounting	1	Zone 2
Current Psychology	1	Zone 2
Discover Psychology	1	Zone 2
Frontiers in Sports and Active Living	1	Zone 3
Humanities and Social Sciences Communications	1	Zone 3
Humanities and Social Sciences Letters	1	Zone 3
International Journal of Computer Information Systems and Industrial Management Applications	1	Zone 3
International Journal of Early Childhood Special Education	1	Zone 3
Issues in Information Systems	1	Zone 3
Journal of Cases on Information Technology	1	Zone 3
Journal of Child and Family Studies	1	Zone 3

Publication titles	Count	Bradford zone
Journal of Industrial Engineering and Management	1	Zone 3
Journal of Innovation and Knowledge	1	Zone 3
Learning and Instruction	1	Zone 3
Pan-African Journal of Education and Social Sciences	1	Zone 3
Psicoperspectivas	1	Zone 3
Psiquemag	1	Zone 3
Psychological Science and Education	1	Zone 3
Publicaciones De La Facultad De Educacion Y Humanidades Del Campus De Melilla	1	Zone 3
Qubahan Academic Journal	1	Zone 3
Research Policy	1	Zone 3
Revista Academia and Negocios	1	Zone 3
Revista De Cercetare si Interventie Sociala	1	Zone 3
Revista De Psicologia (Peru)	1	Zone 3
Social Psychological and Personality Science	1	Zone 3
Tertiary Education and Management	1	Zone 3
Theory and Practice of Second Language Acquisition	1	Zone 3
Total	75	—

Note: Bradford zones represent the concentration of articles across publication sources. They are not journal-quality rankings or Scopus quartiles.

Bradford's Law analysis placed four journals in the core publication zone: *Frontiers in Psychology*, *Education Sciences*, *International Journal of Education and Practice*, and *Environment and Social Psychology*. Together, these sources contributed 30 articles, corresponding to 40% of the complete dataset. Zone 2 contained 12 journals and 21 articles, while Zone 3 comprised 24 journals and 24 articles. This pattern indicated a small group of relatively productive core outlets alongside a broad range of journals that contributed only one or a few articles.

The annual publication profile showed 10 articles in 2021, nine in 2022, nine in 2023, 16 in 2024, 19 in 2025, and 12 in 2026. Biblioshiny reported an annual growth rate of 3.71%, with the highest publication output occurring in 2025. The lower figure for 2026 should not be interpreted as a decline in research activity because the database search was completed on 13 September 2026 and therefore covered only part of that publication year.

Authorship patterns and influential contributions

The authorship profile comprised 245 authors across 75 articles. Of these publications, 10 were single-authored, while the corpus recorded an average of 3.33 co-authors per document. Internationally co-authored articles represented 22.67% of the dataset. Author productivity was relatively dispersed. Chen J., Li X., Saleh M. S., Vereda-Alonso C., and Zhang H. each contributed two articles, whereas the remaining authors contributed one article each. This pattern indicates broad participation but limited continuity of publication by the same authors within the observed period.

Table 2 ranks the most globally cited documents in the corpus. Gebreiter (2022), published in *Critical Perspectives on Accounting*, recorded the highest citation count with 77 citations. This was followed by Xin et al. (2022) in the *Journal of Innovation and Knowledge* with

68 citations and Romero-García et al. (2022) in Education Sciences with 31 citations. Xue et al. (2024) recorded 28 citations and the highest normalized citation score among the 10 documents presented in Table 2. Citation counts represent the data available when the Scopus records and Biblioshiny report were compiled on 13 September 2026.

Table 2. Most globally cited documents in teaching-performance research. Source: authors' analysis based on the Biblioshiny report (2026)

Scholars	Year	Publication outlet	Total citations	TC per year	Normalized TC
Gebreiter, F.	2022	Critical Perspectives on Accounting	77	15.40	2.72
Xin, X., et al.	2022	Journal of Innovation and Knowledge	68	13.60	2.40
Romero-García, C., et al.	2022	Education Sciences	31	6.20	1.09
Xue, D., et al.	2024	Behavioral Sciences	28	9.30	3.96
Yu, H., et al.	2021	Frontiers in Psychology	24	4.00	3.16
Huang, Q.	2022	Frontiers in Psychology	19	3.80	0.67
Yuen, K. F., et al.	2022	Frontiers in Psychology	19	3.80	0.67
Ye, X., et al.	2024	Behavioral Sciences	18	6.00	2.55
Jiang, H., et al.	2024	Humanities and Social Sciences Communications	18	6.00	2.55
Lin, P.-H., et al.	2022	Frontiers in Psychology	16	3.20	0.56

Note: TC per year represents the average annual citation count calculated by Biblioshiny. Normalized TC adjusts citation performance relative to other documents published in the same year. Citation values are based on the Biblioshiny report dated 13 September 2026.

Collectively, these publications show that the most cited contributions address teaching performance through institutional conditions, performance measurement, digital evaluation, socio-emotional competence, self-efficacy, resilience, professional learning, educator competence, and teaching innovation. However, citation frequency should not be treated as direct evidence of methodological quality or theoretical superiority. Older articles have had more time to accumulate citations, while normalized citation scores provide a more appropriate basis for comparing publications from different years.

Temporal trends in teaching performance research

The temporal profile of teaching performance research from 2021 to 2026 shows variation in annual publication output rather than continuous year-on-year growth. The corpus comprised 10 articles in 2021, nine in 2022, nine in 2023, 16 in 2024, 19 in 2025, and 12 in 2026. Publication output was relatively stable during 2021–2023 before increasing in 2024 and reaching its highest level in 2025. Biblioshiny calculated an annual growth rate of 3.71% for the entire period. The 2026 publication count should be interpreted cautiously because the Scopus search was conducted on 13 September 2026 and therefore did not cover the complete publication year.

The cumulative keyword profile indicates that “teaching performance” remained the principal term throughout the observation period. Its cumulative frequency increased from four occurrences in 2021 to eight in 2022, nine in 2023, 11 in 2024, 14 in 2025, and 15 in 2026. The term “higher education” was not recorded in 2021 but increased to three occurrences in 2022,

four in 2023, seven in 2024, 10 in 2025, and 11 in 2026. The trend-topic analysis placed the median year for “teaching performance” in 2022, whereas the median year for “higher education” was 2024. This difference indicates that teaching performance appeared earlier in the corpus, while the visibility of higher education became more pronounced in the later publication years.

The temporal evidence therefore supports conclusions about changes in publication volume and keyword visibility. It does not, however, provide sufficient evidence to claim a verified paradigm shift in theoretical perspectives, research contexts, or methodological sophistication. Establishing such a transition would require systematic year-by-year content coding of the theories, research designs, samples, and empirical contexts used in individual articles. Such coding was not documented in the supplied Biblioshiny report. Accordingly, no shift from reactive to proactive teaching performance models, or from traditional to digitally driven frameworks, is inferred solely from the temporal bibliometric outputs.

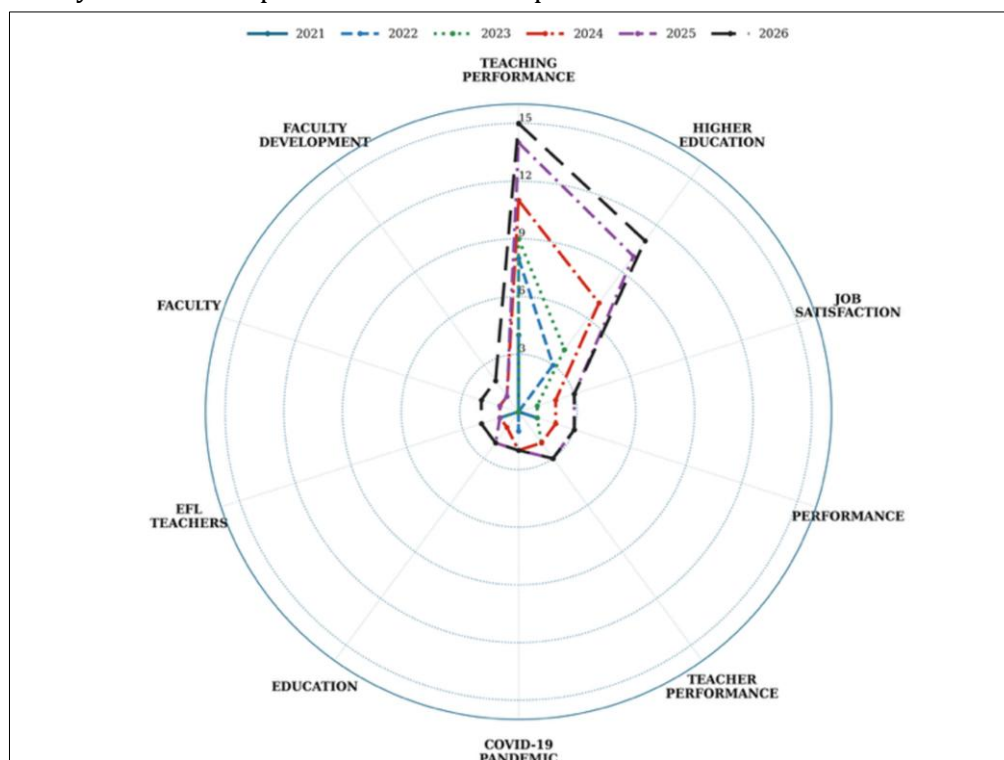


Figure 3. Cumulative author-keyword frequencies in teaching-performance research. Source: authors’ analysis based on the Biblioshiny report (2026)

Regional contributions and global distribution

The country-level results demonstrate that teaching performance research is geographically dispersed but unevenly distributed. The Biblioshiny country scientific production output records 165 author-affiliation country occurrences across 33 countries. China makes the largest contribution, with 35 occurrences, representing 21.21% of the total author-affiliation frequency. It is followed by Spain with 15 occurrences (9.09%), the Philippines with 14 (8.48%), Indonesia with 11 (6.67%), Malaysia with 10 (6.06%), the United States with 9 (5.45%), and Chile with 8 (4.85%). Peru and the United Kingdom each record 6 occurrences (3.64%), while Jordan and Saudi Arabia each record 5 (3.03%).

The corresponding-author analysis provides a complementary, document-level view of geographical leadership. Biblioshiny assigned a corresponding-author country to 63 of the 75 articles, while 12 articles were not represented in this particular output. China leads with 13 corresponding-author articles, followed by the Philippines with 7, Malaysia and Spain with 6 each,

Indonesia with 4, and Jordan with 3. Malaysia records four multiple-country publications among its six corresponding-author articles, while China records three among thirteen and Spain one among six. At the corpus level, international co-authorship accounts for 22.67% of the reviewed publications, indicating that most articles were produced through domestic rather than international author configurations.

Overall, the results show that teaching performance research has an international presence, with particularly visible contributions from China, Spain, the Philippines, Indonesia, and Malaysia. However, both author-affiliation frequency and corresponding-author output remain concentrated in a limited number of countries. The relatively moderate level of international co-authorship also identifies an opportunity for broader cross-country collaboration. Such collaboration could strengthen the geographical coverage of the field and facilitate comparative examination of teaching performance across different educational systems. Nevertheless, the available bibliometric evidence does not independently establish country-specific theoretical or thematic specializations; such conclusions would require additional content analysis of the articles associated with each country.

Step 2: TCCM-based synthesis

To deepen the bibliometric findings, the second stage applies the TCCM framework and organizes the reviewed evidence into four interrelated domains: Theory, Context, Characteristics, and Methodology (Paul & Rosado-Serrano, 2019; Paul et al., 2024). Theory records formal conceptual foundations explicitly stated by the articles. Context maps geographical, institutional, educational, and participant settings. Characteristics identifies focal constructs, determinants, outcomes, and relationships. Methodology records research designs, data sources, samples, and analytical procedures.

In this study, TCCM is employed as a structured interpretive framework rather than as an automated output of Bibliometrix or Biblioshiny. The classification is restricted to information explicitly available in the Scopus bibliographic records, abstracts, and author keywords. When a theoretical foundation, research context, study characteristic, or methodological element is not reported in the available data, it is classified as “not reported” rather than inferred. This procedure complements the descriptive and relational patterns generated through the bibliometric analysis while maintaining a transparent distinction between reported evidence and the researchers’ interpretation.

Theory (T)

Before examining the theoretical foundations of the literature, Fig. 4 illustrates the continuity of recurring author keywords across three publication periods: 2021–2022, 2023–2024, and 2025–2026. The figure uses exact author-keyword matching after standardizing letter case and spacing, without combining synonyms or conceptually similar terms. “Teaching performance” appears across all three periods, with 8 document-level occurrences in 2021–2022, 3 in 2023–2024, and 4 in 2025–2026. “Higher education” also continues across the three periods, increasing from 3 occurrences in 2021–2022 to 4 occurrences in each subsequent period. Other recurring keywords include “COVID-19 pandemic” and “teacher’s self-efficacy” between the first two periods, followed by “teacher performance,” “job satisfaction,” “faculty,” “faculty development,” “education,” and “mixed-methods research” between 2023–2024 and 2025–2026.

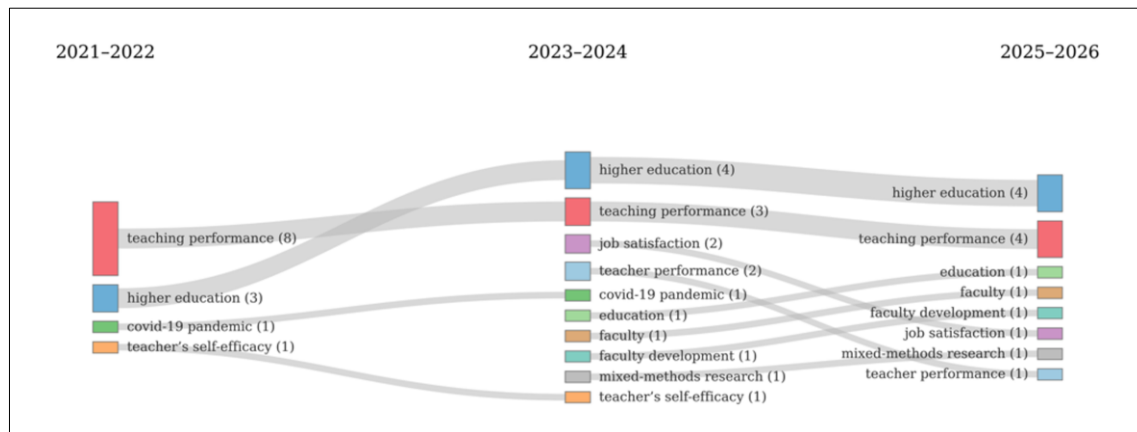


Figure 4. Evolution of recurring author keywords across publication periods. Source: authors' analysis based on the Scopus dataset (2026)

Fig. 4 provides the conceptual background for the theoretical analysis but does not represent the evolution or dominance of particular theories. Each link only indicates that an identical author keyword appears in two adjacent periods, while its width reflects the lower document-level occurrence of that keyword in those periods. The figure should therefore not be interpreted as evidence of causal relationships between concepts or as an automatically generated thematic-evolution output from Biblioshiny. The 2025–2026 interval also includes a partial publication year because the Scopus search was conducted on 13 September 2026.

The theoretical foundations identified in the corpus are heterogeneous and do not converge around one dominant framework. Only a limited number of articles explicitly name a formal theory or theoretical framework in their titles or abstracts. Consequently, the presence of constructs such as self-efficacy, competence, leadership, motivation, and technology adoption does not automatically indicate the formal adoption of the corresponding theories. Where an article does not explicitly report its theoretical foundation, its theoretical position is treated as “not reported” rather than inferred from the variables examined.

Psychological and ecological perspectives are explicitly integrated by Ye et al. (2024), who draw on Bandura’s Theory of Self-Efficacy, Goleman’s Emotional Intelligence Theory, and Bronfenbrenner’s Ecological Systems Theory. Their study examines the relationships among emotional competence, teacher self-efficacy, teaching experience, and preschool teachers’ performance. The findings reported in the abstract indicate that emotional competence is significantly related to teacher performance and self-efficacy, while teacher self-efficacy mediates the relationship between emotional competence and performance. Teaching experience moderates the relationship between emotional competence and self-efficacy but does not significantly moderate the relationship between self-efficacy and teaching performance. Bronfenbrenner’s theoretical perspective is also employed by Ahmad et al. (2024) to organize the teaching-related challenges experienced by foreign-educated academics according to microsystem, exosystem, and macrosystem levels.

Technology-oriented research introduces another theoretical perspective. Tran and Truong (2026) explicitly employ an extended Technology Acceptance Model to examine artificial intelligence adoption in Vietnamese higher education. Their model connects digital competence, AI adoption, pedagogical innovation, teaching performance, and learners’ learning experiences. The study reports that digital competence supports AI adoption and that pedagogical innovation fully mediates the relationship between AI adoption and teaching performance. This application

broadens the theoretical scope of teaching performance research toward technology acceptance and digitally supported instructional practices.

Management and critical perspectives appear in a smaller group of articles. Xin et al. (2022) draw on performance management theory to develop a four-step closed-loop teaching-evaluation system consisting of planning, implementation, evaluation, and feedback. Villalobos-Buehner (2021) applies Habermas's theory of cognitive interests to examine the technical, practical, and emancipatory interests expressed by nine pre-service language teachers. Yu et al. (2021) also provide a theory-oriented explanation of how personal teaching efficacy and autonomous motivation sequentially mediate the relationship between teachers' online informal learning and innovative teaching performance. Nevertheless, because the abstract does not identify one established motivational theory as the study's formal foundation, the article is not assigned to a specific named theoretical category.

Overall, the literature demonstrates theoretical plurality but limited theoretical consolidation. Self-efficacy is a visible concept within the corpus, although its use as a keyword or research variable does not necessarily establish the formal adoption of Bandura's theory. The same distinction applies to leadership, competence, motivation, and digitalization, which frequently appear as constructs but are not consistently connected to explicitly stated theoretical foundations. This fragmentation indicates an opportunity for future research to articulate its theoretical positioning more clearly and to develop integrative explanations of how individual capabilities, psychological beliefs, organizational conditions, and technological factors are associated with teaching performance.

4.2.2 Context (C)

The geographical distribution of the literature shows that teaching performance research has attracted contributions from multiple national settings. The Biblioshiny country scientific production output records 165 author-affiliation country occurrences across 33 countries. China has the highest frequency, with 35 occurrences, followed by Spain with 15, the Philippines with 14, Indonesia with 11, Malaysia with 10, the United States with 9, and Chile with 8 (see Table 3). Peru and the United Kingdom each record 6 occurrences, while Jordan and Saudi Arabia each record 5. The remaining 22 countries collectively account for 41 author-affiliation occurrences.

Table 3. Geographical distribution of teaching-performance research

Rank	Country	Author-affiliation frequency	Percentage of total frequency
1	China	35	21.21%
2	Spain	15	9.09%
3	Philippines	14	8.48%
4	Indonesia	11	6.67%
5	Malaysia	10	6.06%
6	United States	9	5.45%
7	Chile	8	4.85%
8	Peru	6	3.64%
9	United Kingdom	6	3.64%
10	Jordan	5	3.03%
11	Saudi Arabia	5	3.03%
—	Other 22 countries	41	24.85%
	Total	165	100.00%

Source: authors' analysis based on the Biblioshiny country scientific production output (2026).

The frequencies in Table 3 represent countries appearing in authors' affiliations rather than the number of unique articles or empirical research locations. Therefore, the total exceeds the final corpus of 75 articles because one publication may include multiple authors or affiliations from different countries. Author-affiliation countries should also not automatically be interpreted as the geographical settings in which data were collected. Empirical locations were identified separately and only when they were explicitly reported in the titles or abstracts.

Contextual variation extends beyond educational level to the form of instructional work and the resources available to enact it. Blended primary STEM settings emphasize lesson profiles and teacher development (Čakāne et al., 2025), flexible-teaching research examines teachers' perceptions, competence, and performance under changing delivery conditions (Talosa et al., 2025), and medical peer-teaching studies connect structured formative assessment with teaching performance and self-efficacy (Zhang et al., 2025). Secondary-school research, by contrast, highlights organizational structure, professional growth, and performance across established institutional roles (Li et al., 2023; Meng & Briscioli, 2026). These contrasts indicate that context in the TCCM synthesis should not be reduced to country or educational level; it also includes instructional mode, disciplinary expectations, institutional resources, and the performance evidence available in a particular setting. The corpus therefore supports contextual comparison only when these conditions are specified rather than assumed.

Beyond geographical diversity, the literature covers multiple educational levels and professional settings. Higher education is one of the most visible contexts, including research on university lecturers, teaching evaluation, faculty performance, digital leadership, and artificial intelligence adoption. Xin et al. (2025), for example, examine digital leadership, teachers' digital competence, and teaching performance among university instructors in Inner Mongolia, China. Tran and Truong (2026) investigate digital competence, AI adoption, pedagogical innovation, and teaching performance in Vietnamese higher education. Xin et al. (2022) address university teaching-performance evaluation through a big-data-based performance management system.

Teacher education and pre-service preparation constitute another identifiable context. Romero-García et al. (2022) examine socio-emotional competence and self-efficacy among prospective secondary-school teachers. Asare (2025) investigates teaching self-efficacy and practicum anxiety among pre-service management teachers, while Elhamian et al. (2026) study the professional learning concerns of Iranian pre-service elementary-school teachers. Villalobos-Buehner (2021) examines the cognitive interests of pre-service language teachers. These studies focus on teachers who are still developing their professional identities and instructional capabilities rather than on experienced teachers working in established classroom roles.

The corpus also encompasses early-childhood, primary, secondary, and vocational education. Ye et al. (2024) examine emotional competence, teacher self-efficacy, teaching experience, and preschool teachers' performance in Zhejiang Province, China. Čakāne et al. (2025) analyze teaching profiles in blended primary STEM education in Latvia. Studies involving secondary-school teachers address organizational structures, teacher development, and performance (Li et al., 2023; Meng & Briscioli, 2026). Jurado-de-los-Santos and Soler-Costa (2024) explicitly examine teaching management and educational practices in secondary and vocational education. However, the available metadata do not support calculating an exact number of articles for each educational level because several studies cover overlapping settings or do not report their educational level consistently.

Specialized professional settings further expand the contextual scope of the literature. Zhang et al. (2025) investigate peer teaching and formative assessment in medical education.

Yuen et al. (2022) identify competencies required by maritime business educators in the digital era. Meng et al. (2026) examine intelligent sensor-assisted teaching in physical education. Language and intercultural education are represented through research on EFL teachers, pre-service language teachers, teacher self-assessment, empowerment, and intercultural competence (Huang, 2022; Villalobos-Buehner, 2021; Guo & Laokulrach, 2024; Estaji & Hafezi, 2026).

Digital, blended, and AI-supported teaching represents a cross-cutting context rather than a separate educational level. Uyun (2023) examines teachers' technostress in blended teaching and learning, while Xin et al. (2025) focus on digital leadership and digital competence in higher education. Tran and Truong (2026) investigate AI adoption and pedagogical innovation, and Tumiran et al. (2026) examine AI-supported Islamic classroom management. These articles indicate that digital technology is studied across different educational and institutional environments. However, the corpus does not support the conclusion that digitalization has the same effect in every context because the studies differ in their participants, educational levels, technologies, and research designs.

Table 4 summarizes the principal educational and professional contexts identified from the titles, abstracts, and author keywords of the reviewed articles. The categories are interpretive and may overlap because one article can represent more than one educational level, institutional setting, or professional context.

Table 4. Educational and professional contexts represented in the corpus

Contextual category	Contexts explicitly represented	Main teaching-performance issues examined	Illustrative articles
Higher education	Universities, colleges, lecturers, and faculty members	Teaching evaluation, digital leadership, digital competence, AI adoption, pedagogical innovation, and faculty performance	Xin et al. (2022); Xin et al. (2025); Tran and Truong (2026)
Teacher education	Pre-service elementary, secondary, management, and language teachers	Teacher self-efficacy, practicum anxiety, socio-emotional competence, professional learning, and cognitive interests	Villalobos-Buehner (2021); Romero-García et al. (2022); Asare (2025); Elhamian et al. (2026)
Early-childhood education	Preschool teachers and early-childhood education settings	Emotional competence, self-efficacy, teaching experience, and preschool teacher performance	Ye et al. (2024)
Primary education	Primary teachers and primary STEM classrooms	Blended learning, lesson profiles, instructional practices, and professional development	Čakāne et al. (2025)
Secondary education	Secondary-school teachers and organizational settings	Organizational structure, professional growth, recognition, motivation, and teacher performance	Li et al. (2023); Meng and Briscioli (2026)
Vocational education	Secondary and vocational training settings	Teaching management, classroom practices, methodological strategies, and teacher roles	Jurado-de-los-Santos and Soler-Costa (2024)
Medical education	Medical students, peer tutors, and clinical education	Peer teaching, formative assessment, teaching self-efficacy, teaching anxiety, and instructional competence	Zhang et al. (2025)
Maritime education	Maritime business educators	Pedagogical, maritime, interpersonal, business, and digital competencies	Yuen et al. (2022)
Physical education	Physical-education teachers and sports-education programmes	Psychological preparation, instructional improvement, digital technologies, and AI use	Liu et al. (2025); Meng et al. (2026)
Language and intercultural education	EFL teachers, pre-service language teachers, and international-student settings	Self-assessment, self-regulation, empowerment, cognitive interests,	Villalobos-Buehner (2021); Huang (2022); Guo and

Contextual category	Contexts explicitly represented	Main teaching-performance issues examined	Illustrative articles
		intercultural competence, and transformational leadership	Laokulrach (2024); Estaji and Hafezi (2026)
Digital, blended, and AI-supported education	Online courses, blended learning, flexible teaching, and AI-supported classrooms	Technostress, digital competence, technology adoption, pedagogical innovation, and teaching performance	Uyun (2023); Xin et al. (2025); Tran and Truong (2026); Tumiran et al. (2026)

Source: authors' analysis based on the titles, abstracts, and author keywords in the Scopus dataset (2026). Contextual categories may overlap and are not intended to produce mutually exclusive article counts.

Taken together, the Context dimension shows substantial geographical, educational, and professional diversity but uneven coverage across settings. Higher education is especially visible in studies of digital leadership, AI adoption, and performance appraisal, whereas evidence from school, vocational, and specialized professional settings is more dispersed. Because these environments differ in instructional tasks, stakeholder expectations, technological infrastructure, and performance criteria, findings from one sector should not be generalized automatically to another. Context should therefore be treated as a boundary condition in future cross-level models rather than as descriptive background.

Characteristics (C)

The characteristics dimension shows that teaching performance research can be organized into three interrelated groups: individual and psychological attributes, instructional and professional capabilities, and organizational and technological conditions. These categories are based on constructs explicitly reported in the titles and abstracts of the reviewed articles. They do not constitute a single causal model tested across all 75 studies because the articles examine different educational levels, populations, institutional settings, and measures of teaching performance.

Individual and psychological characteristics include teacher self-efficacy, emotional competence, personality, motivation, self-regulation, intercultural competence, and teaching anxiety. Ye et al. (2024) report significant relationships among emotional competence, teacher self-efficacy, and preschool teachers' performance. Teacher self-efficacy mediates the relationship between emotional competence and performance, while teaching experience moderates the relationship between emotional competence and self-efficacy but not the relationship between self-efficacy and teaching performance. Burić et al. (2023) examine associations between Big Five personality domains and student ratings of teaching quality and teacher enthusiasm. Huang (2022) addresses teacher self-assessment in relation to self-regulation and self-efficacy, whereas Guo and Laokulrach (2024) report that transformational leadership mediates the relationships of intercultural competence with teaching performance and international-student engagement.

Instructional and professional capabilities encompass pedagogy, subject-specific competence, digital competence, teaching innovation, assessment practices, and professional development. Yuen et al. (2022) identify five competency areas associated with the perceived teaching performance of maritime business educators: pedagogical, maritime, interpersonal, business, and digital competencies. Zhang et al. (2025) report that structured formative assessment in peer-assisted medical education is associated with higher teaching performance and teaching self-efficacy and lower teaching anxiety among peer tutors. Lin et al. (2022) examine teaching innovation using student-evaluation data collected before and during the COVID-19 pandemic, while Čakāne et al. (2025) apply eight instructional criteria to identify teaching profiles in blended primary STEM classrooms.

Organizational and technological conditions form the third group of characteristics. Xin et al. (2025) model teachers' digital competence as a mediator between administrators' digital leadership and teaching performance. Tran and Truong (2026) connect digital competence, AI adoption, pedagogical innovation, and teaching performance in Vietnamese higher education. Uyun (2023) examines school administrative support, teacher experience, teacher self-efficacy, technological pedagogical content knowledge, and technostress in blended teaching and learning. Li et al. (2023) investigate the relationships between hierarchical, horizontal, and team-based organizational structures and the performance of full-time teachers in Chinese secondary schools. Villarama et al. (2025) further report associations of teaching assistants with teachers' workplace efficiency and self-efficacy.

The thematic map complements this structured synthesis by positioning the keyword clusters according to their relevance and development ranks (see Fig. 5). The analysis was conducted in Biblioshiny using merged keywords, a minimum frequency of two, and Louvain clustering without stemming. The size of each bubble represents its cluster frequency. Centrality indicates a theme's relative connection with other themes, while density reflects its internal development within the keyword network.

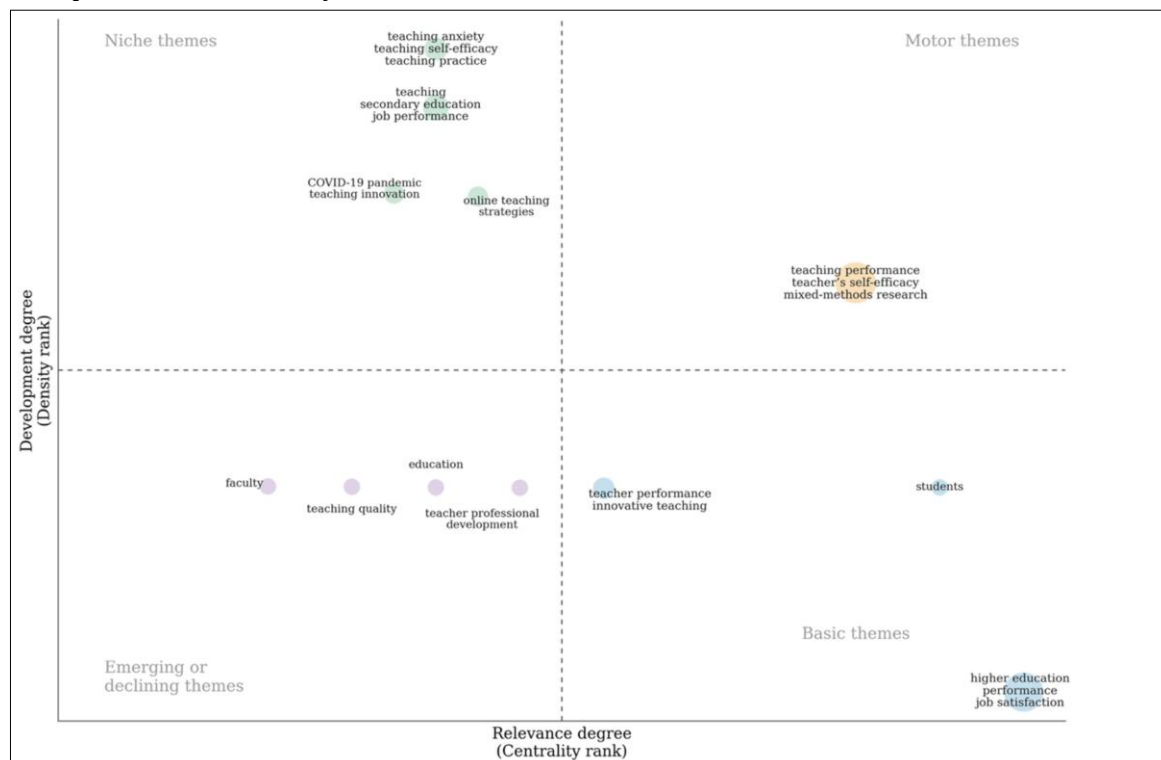


Figure 5. Development and relevance of themes in teaching-performance research. Source: authors' analysis based on the Biblioshiny report (2026)

The “teaching performance” cluster occupies the motor-theme quadrant, with a centrality rank of 10, a density rank of 8, and a cluster frequency of 23. Its displayed terms include “teaching performance,” “teacher’s self-efficacy,” and “mixed-methods research.” Its position indicates that this cluster is relatively well connected to the wider thematic structure and internally developed. However, the thematic map establishes keyword relationships rather than causal effects among the constructs.

The basic-theme quadrant contains “higher education,” “teacher performance,” and “students.” The “higher education” cluster has the highest centrality rank of 12 and a cluster frequency of 21, but a density rank of 1. Its representative terms include “higher education,”

“performance,” and “job satisfaction.” This position indicates that higher education is strongly connected to the broader research field but is less internally developed within the analyzed keyword network. The “teacher performance” and “students” clusters are also positioned as basic themes, with cluster frequencies of 5 and 2, respectively.

Methodology (M)

Teaching performance research employs diverse methodological approaches, with quantitative survey-based designs repeatedly represented in the dataset. Structural equation modeling, regression analysis, factor analysis, qualitative case studies, mixed-method designs, quasi-experimental studies, and emerging computational approaches are used to examine teaching performance from different analytical perspectives. Table 5 summarizes the principal methodological approaches explicitly reported in the titles and abstracts of the reviewed articles.

Table 5. Methodological approaches in teaching-performance research. Source: authors’ analysis based on the Scopus dataset (2026)

Methodological approach	Research design and data	Analytical procedures	Representative articles
Quantitative survey and correlational research	Cross-sectional surveys involving teachers, students, preservice teachers, or academic staff	Structural equation modelling, PLS-SEM, regression, correlation, and statistical hypothesis testing	Xin et al. (2025); Guo and Laokulrach (2024); Asare (2025); Syahrudin et al. (2025); Murwaningsih and Fauziah (2023)
Measurement and psychometric research	Scale development, validation, and measurement-invariance assessment	Exploratory factor analysis, confirmatory factor analysis, multigroup confirmatory factor analysis, and reliability and validity assessment	Bazán-Ramírez et al. (2021); Sánchez-Cabrero et al. (2024); Criado-del Rey et al. (2024); Jiménez-Jaraba et al. (2025)
Qualitative and longitudinal case studies	Interviews, reflective analyses, written reflections, and institution-specific case evidence	Inductive analysis, thematic interpretation, longitudinal analysis, and case-study analysis	Jiang et al. (2024); Cubas and Sanchez (2025); Villalobos-Buehner (2021); Elhamian et al. (2026)
Mixed-method research	Integration of questionnaire or survey evidence with interviews, reflections, or qualitative responses	Sequential explanatory analysis and integration of quantitative and qualitative findings	Vargas-Madriz and Nocente (2023); Özmen et al. (2025); Estaji and Hafezi (2026); Ahmad et al. (2024)
Quasi-experimental and intervention research	Intervention and comparison groups, pre- and post-intervention measurements, and educational programme evaluation	Linear mixed-effects models and comparative statistical analysis	Zhang et al. (2025); Perez and Ortega-Dela Cruz (2024)
Computational and AI-supported research	Network-based data, sensor-assisted instruction, textual student evaluations, and human-AI assessment workflows	Psychological network analysis, AHP, statistical analysis, sentiment mining, artificial intelligence, and human-AI moderation	Xue et al. (2024); Meng et al. (2026); Rosales-Anzola et al. (2026); Ersozlu et al. (2026)

Quantitative research in the dataset frequently uses structural equation modeling to investigate relationships among psychological, instructional, technological, and organizational determinants of teaching performance. Xin et al. (2025), for example, employed SEM with AMOS to examine the relationships among administrators’ digital leadership, teachers’ digital competence, and teaching performance. Guo and Laokulrach (2024) and Syahrudin et al. (2025) applied partial least squares structural equation modeling, whereas Burić et al. (2023) used bifactor multilevel structural equation models to investigate relationships among teacher personality, student-rated teaching quality, and teacher enthusiasm.

Qualitative research provides more process-oriented explanations of how teacher capabilities and teaching performance develop. Jiang et al. (2024) employed a qualitative longitudinal case study approach, drawing on interviews and reflective analyses to investigate

changes in teacher self-efficacy during an 18-month STEAM professional-development program. Cubas and Sanchez (2025) used a qualitative case study to examine strategies for strengthening the digital skills of accounting educators, while Elhamian et al. (2026) investigated preservice teachers' professional learning through qualitative evidence. These studies illustrate how qualitative inquiry can explain interactions among professional learning, teacher beliefs, institutional conditions, and teaching practices.

Mixed-method designs are also represented in the dataset. Vargas-Madriz and Nocente (2023) combined surveys and student interviews to investigate students' willingness to provide feedback through end-of-term teaching evaluations. Özmen et al. (2025) integrated quantitative evidence from 660 teachers with qualitative interviews involving 54 participants. Estaji and Hafezi (2026) adopted a sequential explanatory mixed-methods design, combining questionnaire data from 156 EFL teachers with semi-structured interviews involving 10 participants. These designs connect statistical relationships with participants' experiences and contextual explanations.

Quasi-experimental and intervention-based research provides evidence concerning changes following specific educational interventions. Zhang et al. (2025) conducted a quasi-experimental parallel-group study in three medical universities, using linear mixed-effects models to evaluate structured formative assessment in peer-assisted learning. The study also incorporated qualitative reflections to identify changes in communication, confidence, interaction, and teaching clarity. This combination illustrates how intervention evidence can be strengthened by qualitative explanation.

The dataset additionally contains emerging analytical approaches. Xue et al. (2024) applied psychological network analysis, while Meng et al. (2026) developed an AHP-optimized framework for sensor-assisted physical education. Rosales-Anzola et al. (2026) integrated descriptive statistics, sentiment mining, and artificial intelligence into a decision-support system for faculty-performance management. Ersozlu et al. (2026), meanwhile, evaluated a human-AI moderation workflow for teaching-performance assessment. These studies demonstrate emerging applications of computational and AI-supported evaluation; however, the available evidence does not establish that these approaches already dominate teaching performance research.

The keyword co-occurrence network complements the structured synthesis by showing relationships among the principal concepts represented in the literature. To construct an interpretable network, the vocabulary was restricted to the 50 most frequent terms reported in the WordCloud output of the Biblioshiny analysis. This threshold was selected to balance conceptual coverage with network readability within the 75-document corpus. Co-occurrence relationships were calculated from the Author Keywords field of the 75 Scopus records. The largest connected component contained 29 keywords and 42 unique co-occurrence relationships, forming five algorithmically generated communities, as shown in Fig. 6.

Within the network, "teaching performance" and "higher education" constitute the two most prominent nodes. "Teaching performance" is connected with terms including "self-efficacy," "teacher's self-efficacy," "teacher performance," "secondary education," "faculty development," and "EFL teachers." Meanwhile, "higher education" is associated with "faculty development," "students," "job satisfaction," "teacher resilience," "COVID-19 pandemic," and "teaching innovation." Node size represents keyword frequency, line thickness indicates the number of co-occurrences within the same articles, and node color identifies the algorithmically generated community.

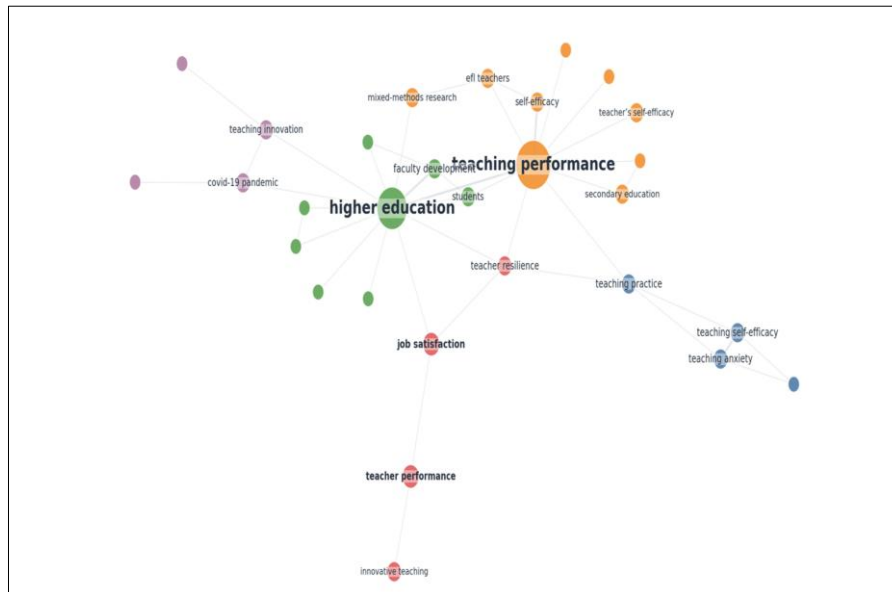


Figure 6. Author-keyword co-occurrence network. Source: authors' analysis based on the Biblioshiny report (2026)

Discussion

The central result of this review is that teaching performance is better interpreted as an organizationally embedded, multilevel outcome than as a stable attribute of an individual teacher. The bibliometric and TCCM evidence places teacher-level psychological and professional resources alongside leadership, supervision, work structure, appraisal, digital systems, and educational context. This configuration helps explain why studies that examine only self-efficacy, motivation, competence, or personality capture only one part of the performance process (Burić et al., 2023; Huang, 2022; Lu & Ishak, 2022; Ye et al., 2024). It also extends management-oriented studies showing that leadership and organizational structure are associated with the conditions under which instructional work is enacted (Al-Zoubi et al., 2023; Li et al., 2023; Murwaningsih & Fauziah, 2023). The contribution is not a claim that all levels have been jointly tested, because most included studies examined narrower relationships. Rather, the synthesis identifies a cross-level architecture that can organize these relationships without overstating the available evidence.

At the individual level, the literature consistently treats self-efficacy, emotional competence, motivation, self-regulation, resilience, and professional competence as resources relevant to instructional work. The meaning of these resources is more specific than a generic claim that positive psychological attributes improve performance. Burić et al. (2023) linked personality domains with student-rated teaching quality and teacher enthusiasm, Huang (2022) connected self-assessment with self-regulation and self-efficacy, and Ye et al. (2024) reported a mediated relationship involving emotional competence, self-efficacy, and preschool teachers' performance. Complementary longitudinal evidence shows reciprocal associations between teacher self-efficacy and teaching quality, while meta-analytic evidence identifies job satisfaction as a meaningful correlate of teacher-related outcomes (Burić et al., 2024; Wartenberg et al., 2023). Pandemic-era evidence also cautions against assuming a simple correspondence between well-being and reported teaching quality (Sacré et al., 2023). Together, these studies suggest that teacher resources are developmental and situational, which is consistent with the review's multilevel framing.

The organizational evidence clarifies the mechanisms through which teacher resources may be enabled or constrained. Leadership and supervision provide direction and feedback, organizational structure shapes coordination and authority, and professional development or welfare can affect the conditions under which teachers sustain their work (Al-Zoubi et al., 2023; Li et al., 2023; Murwaningsih & Fauziah, 2023; Neyra et al., 2021). Complementary evidence outside the selected corpus links perceived organizational support with teacher job performance, instructional leadership with performance through self-efficacy, and school organizational conditions with professional learning (Elfira et al., 2024; Hayes et al., 2024; Li et al., 2025; Rahman, 2022). This pattern gives the HRM interpretation of teaching performance greater specificity: capability development is unlikely to be sufficient when opportunities to apply new skills, receive credible feedback, or obtain professional support are weak. The review therefore shifts attention from isolated predictors toward the organizational arrangements through which teacher resources are enacted. Because the evidence is largely associative, these arrangements should be treated as plausible mechanisms for testing rather than as established causal pathways.

Digitalization adds a sociotechnical layer to this organizational relationship. Blended teaching, electronic appraisal, digital leadership, big-data evaluation, and AI-supported assessment can expand instructional options and the information available for performance management (Bervell et al., 2024; Ersozlu et al., 2026; Xin et al., 2022, 2025). The same technologies can also introduce new demands, as illustrated by research that places technostress within explanations of blended teaching-learning performance (Uyun, 2023). Broader evidence shows considerable heterogeneity in the factors associated with university teachers' digital competence, while recent mixed-methods research identifies TPACK as a mediator between AI competence and teaching performance (Saltos-Rivas et al., 2023; Tan et al., 2025). AI-oriented studies further show that automated analysis can support faculty decisions or moderation, but they do not justify replacing professional judgment with algorithmic output (Ersozlu et al., 2026; Rosales-Anzola et al., 2026). Digital technology is therefore best interpreted as an enabling or constraining condition whose contribution depends on competence, behavioral adaptation, organizational support, and governance.

Performance appraisal and feedback connect the individual and organizational levels with the wider educational ecosystem. Student evaluations, supervisory judgments, classroom evidence, teacher reflection, and digital appraisal systems represent different sources of information rather than interchangeable measures of one construct (Bervell et al., 2024; Shaath & Abed, 2024; Vargas-Madriz & Nocente, 2023). Participation and response behavior can affect student-evaluation data, while psychometric studies show that teaching-quality measures require evidence of validity across the populations in which they are used (Bazán-Ramírez et al., 2021; Jiménez-Jaraba et al., 2025; Vereda-Alonso et al., 2024). A multilevel performance-management system should therefore combine sources according to the decision being made instead of privileging one rating as definitive. This interpretation also distinguishes developmental feedback from administrative control. When appraisal information is connected with coaching, professional learning, and reflective adjustment, it becomes part of an improvement process rather than merely a terminal judgment.

Viewed as an educational ecosystem, teaching performance is also shaped by recurrent exchanges among teachers, learners, supervisors, institutional leaders, and appraisal systems. Student feedback and supervisory assessment can inform professional reflection, while electronic appraisal and data-based evaluation systems can accelerate the circulation of performance information across organizational levels (Bervell et al., 2024; Shaath & Abed, 2024; Xin et al.,

2022). The value of these information flows depends on participation, measurement quality, institutional interpretation, and the opportunity for teachers to respond through professional learning or instructional adjustment (Vargas-Madriz & Nocente, 2023; Vereda-Alonso et al., 2024). This perspective helps explain why the same performance signal may function as developmental feedback in one institution but as administrative surveillance in another. It also supports the recursive logic of Fig. 7: feedback generated by classroom practice and appraisal can return to teachers and institutions as input for subsequent adaptation, although the reviewed evidence does not establish the timing or causal direction of these loops. Future empirical work should therefore test whether feedback quality and organizational response mechanisms determine when ecosystem information contributes to sustained teaching improvement.

Contextual diversity is a substantive boundary condition rather than background description. The corpus includes early-childhood, primary, secondary, vocational, higher, medical, maritime, physical, and language education, and these settings differ in instructional tasks, stakeholder expectations, performance indicators, and technological infrastructure (Čakāne et al., 2025; Friend et al., 2026; Yuen et al., 2022; Zhang et al., 2025). Cross-country evidence is similarly uneven and should not be reduced to affiliation counts because an author's country is not necessarily the site of empirical data collection. The prominence of higher education in several digital and AI-oriented studies also means that conclusions about digital performance management cannot automatically be transferred to school settings. The review therefore supports context-sensitive comparison rather than universalization. Stronger cumulative knowledge will require researchers to measure institutional and educational conditions directly instead of using country or sector labels as proxies for them.

Table 6. Multilevel integration of teaching-performance research

Analytical level	Principal factors represented in the corpus	Relationship with teaching performance	Representative studies
Individual or micro level	Personality, motivation, emotional intelligence, socio-emotional competence, self-efficacy, self-assessment, self-regulation, resilience, and job satisfaction	Individual psychological resources influence how teachers approach instruction, regulate their work, respond to difficulties, and maintain instructional engagement	Burić et al. (2023); Huang (2022); Lu and Ishak (2022); Romero-García et al. (2022); Criado-Del Rey et al. (2024); Zaimoğlu and Dağtaş (2025)
Organizational or meso level	Creative and transformational leadership, pedagogical supervision, organizational structure, communication and organizational climate, workload, welfare, professional development, and appraisal	Organizational arrangements provide direction, resources, coordination, feedback, and working conditions through which individual capabilities are converted into teaching practice	Al-Zoubi et al. (2023); Matos and Kasztelnik (2021); Neyra et al. (2021); Li et al. (2023); Murwaningsih and Fauziah (2023); Pepito et al. (2024)
Technological and environmental level	COVID-19 disruption, online and blended learning, teaching innovation, digital platforms, AI-supported teaching, and data-based performance evaluation	Environmental and technological changes reshape instructional demands, teaching delivery, monitoring, adaptation, and performance assessment	Casimir et al. (2023); Lin et al. (2022); Uyun (2023); Bervell et al. (2024); Xin et al. (2022); Ersozlu et al. (2026); Rosales-Anzola et al. (2026)
Cross-level integration	Digital leadership and digital competency; intercultural competence and transformational leadership; professional attitude, welfare, and job satisfaction	Teaching performance develops when individual resources are activated or constrained by leadership, organizational practices, technological infrastructure, and educational context	Guo and Laokulrach (2024); Murwaningsih and Fauziah (2023); Xin et al. (2025)
Remaining research gap	Limited explicit multilevel, longitudinal, and conditional-process designs	The literature has not yet adequately explained when and under what organizational or technological conditions individual teacher resources produce stronger teaching performance	Synthesis of the 75 included articles

Source: Authors' synthesis based on the Scopus corpus of 75 included articles and the Biblioshiny report (2026).

The methodological profile helps explain why cross-level mechanisms remain underdeveloped. Survey-based and cross-sectional designs are repeatedly represented in the corpus, while qualitative longitudinal, mixed-method, and quasi-experimental studies provide fewer but more process-sensitive examples (Jiang et al., 2024; Vargas-Madriz & Nocente, 2023; Zhang et al., 2025). Critical reviews of teacher professional development similarly caution that widely repeated design principles do not always rest on equally strong causal evidence (Asterhan & Lefstein, 2024). Cross-sectional associations can identify relationships but cannot determine temporal ordering, reciprocal effects, or sustained improvement. Multisource designs are also necessary because self-reported performance, student ratings, supervisory assessments, and institutional records are affected by different sources of error. Longitudinal multilevel models, intervention studies, and integrated qualitative evidence would be especially useful for testing the framework developed here.

From an HRM perspective, the synthesis can be organized around five interdependent functions already represented in the corpus: capability development, motivational and psychological activation, organizational opportunity and support, performance feedback, and responsible digital governance. These functions connect individual resources with the institutional processes through which teaching is supported and evaluated. Table 6 summarizes how the reviewed factors map onto individual, organizational, technological, and cross-level domains. The framework does not assume that each function has an equal effect or that every institution requires the same configuration. Its value lies in identifying the organizational questions that should be asked before attributing performance differences solely to teachers. This reframing is the main conceptual contribution of the review because it moves teaching performance from a list of predictors toward an integrated performance-management problem.

Figure 7 develops this contribution into a process-oriented model that links instructional preparation, adaptive integration, and sustained teaching improvement. Individual resources enter the process through self-efficacy, motivation, self-regulation, and professional competence; organizational conditions provide leadership, supervision, structure, and support; and ecosystem conditions provide learner feedback, institutional expectations, and appraisal information. Digital technologies can connect these elements by accelerating information flow and supporting instructional or evaluative processes, but they can also create strain when competence, governance, or system fit is inadequate (Uyun, 2023; Xin et al., 2025). The feedback relationships in the figure should be understood as propositions generated from the synthesis, not as causal paths already verified across the 75 studies. This distinction is important because the review is based on heterogeneous designs and measures and because the TCCM synthesis relied primarily on bibliographic records and abstracts. Empirical testing should therefore focus on whether repeated cycles of preparation, enactment, feedback, and adaptation explain sustained teaching improvement across different organizational settings.

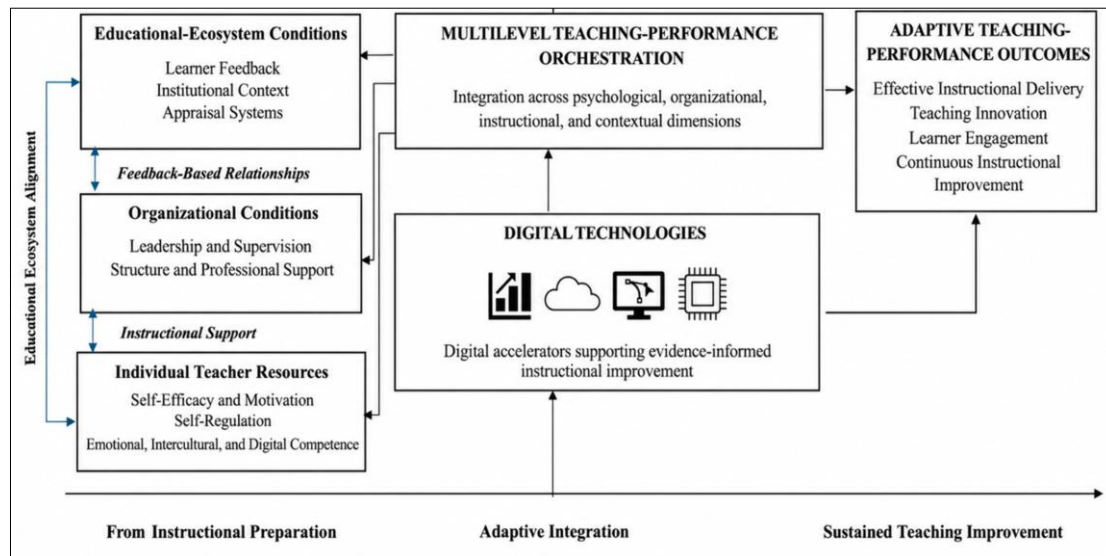


Figure 7. Digitally orchestrated multilevel development toward adaptive teaching performance. Source: authors' synthesis based on the 75-article Scopus corpus and Biblioshiny report (2026)

RESEARCH AGENDA AND IMPLICATIONS

The review identifies research priorities that follow directly from the theoretical, contextual, characteristic, and methodological gaps documented in the selected corpus. These priorities are framed as propositions for future study rather than as claims already established by the review. They focus on cross-level explanation, context-sensitive measurement, stronger temporal and multisource designs, and institutional use of digital and AI-supported systems.

Theoretical integration and cross-level models

Future research should test models in which teacher-level resources are connected explicitly with organizational mechanisms. Self-efficacy, motivation, emotional competence, and digital competence could be examined as mechanisms through which leadership, supervision, professional development, and technological support are associated with teaching performance (Burić et al., 2023; Guo & Laokulrach, 2024; Xin et al., 2025). Mediation and moderation models may be useful when their temporal assumptions are supported by the design, but cross-sectional data should not be used to imply causal sequences. The multilevel framework in Fig. 7 offers a structure for specifying these relationships while leaving their direction and strength to empirical testing.

Reciprocal relationships deserve particular attention because teaching performance may both influence and be influenced by feedback, professional learning, and organizational support. Longitudinal designs could test whether performance information changes teacher beliefs or practices and whether those changes subsequently alter appraisal outcomes. This would provide a stronger basis for the feedback loops proposed in Fig. 7 than contemporaneous associations can provide. Repeated-measures and multilevel approaches are especially relevant when teachers are nested within schools, departments, or institutions.

Contextual and measurement priorities

Cross-country and cross-sectoral research should move beyond treating location as a descriptive label. Studies could examine whether the relationships among teacher resources, leadership, digital competence, and teaching performance vary with directly measured

institutional support, teacher autonomy, appraisal practices, technological infrastructure, or professional-development systems. This is important because the reviewed evidence spans countries and educational sectors with substantially different institutional conditions (Čakāne et al., 2025; Li et al., 2023; Syahrudin et al., 2025; Tran & Truong, 2026). Comparative research should define the contextual attributes being compared rather than infer them from national or economic classifications alone.

Measurement research should also distinguish among teaching performance, teacher performance, teaching quality, teaching effectiveness, and student-rated teaching quality. The corpus uses these related outcomes in different ways, and their measures cannot be assumed to capture the same construct. Future studies should report the conceptual definition, source of evidence, dimensional structure, reliability or validity information when applicable, and the decision context in which a measure is used (Bazán-Ramírez et al., 2021; Jiménez-Jaraba et al., 2025; Sánchez-Cabrero et al., 2024). Multisource assessment would be particularly useful when performance information is used for both development and accountability.

Digital and AI-supported assessment requires additional measurement safeguards. Automated text analysis, decision-support systems, and human-AI moderation can expand the scale of appraisal, but their outputs depend on the quality and representativeness of the data used and the validity of the rules or models applied (Ersozlu et al., 2026; Rosales-Anzola et al., 2026). Future research should report how automated outputs are validated against human judgment, how disagreement is handled, and whether performance decisions differ across groups or contexts. These questions are necessary before AI-supported assessment can be treated as a dependable component of HRM practice.

Methodological priorities

Longitudinal, repeated-measures, and experience-sampling designs are needed to examine how teacher beliefs, emotional states, digital competence, and instructional behavior change over time. Existing longitudinal work illustrates the value of observing within-teacher development rather than relying only on between-person differences (Abrahams et al., 2025; Jiang et al., 2024). Such designs could clarify whether professional learning, supervision, or technological change precedes changes in teaching performance and whether those changes are sustained.

Experimental and quasi-experimental studies can strengthen evidence about interventions when randomization or suitable comparison groups are feasible. The quasi-experimental study by Zhang et al. (2025), for example, shows how structured formative assessment can be examined through repeated educational and psychological outcomes. Future intervention studies could evaluate professional development, pedagogical supervision, digital-leadership initiatives, or AI-supported feedback with multiple measurement points and follow-up periods. Claims of effectiveness should remain proportional to the design and implementation conditions.

Mixed-method research can connect statistical relationships with teachers' experiences, professional concerns, and institutional conditions. Studies combining surveys, interviews, reflections, or qualitative observations demonstrate how numerical patterns can be interpreted in relation to practice (Ahmad et al., 2024; Estaji & Hafezi, 2026; Vargas-Madriz & Nocente, 2023). Future work should integrate the two evidence strands at the level of the research question rather than presenting them as parallel analyses. This is particularly relevant for understanding why the same organizational practice produces different responses across teachers or settings.

Multisource and multilevel designs are also required when performance data are nested or produced by different stakeholders. Matched evidence from teachers, students, supervisors, classrooms, and institutions could reduce dependence on single-source ratings and allow researchers to distinguish individual from organizational variation. Analytical choices should reflect the nested structure of the data rather than treating all observations as independent. Where ethical and legal conditions permit, transparent reporting of protocols, coding rules, and analytical scripts would improve reproducibility.

Implications for practice and policy

For educational leaders, the synthesis suggests that teaching performance should be managed as a continuing developmental process rather than through periodic appraisal alone. Diagnostic use of the framework can help distinguish whether a performance problem is more closely related to professional capability, psychological resources, leadership and supervision, work organization, technological support, or the quality of feedback. This distinction matters because the corresponding intervention differs. Training is unlikely to resolve a problem caused primarily by weak coordination or unusable appraisal systems, while technology investment is unlikely to compensate for insufficient pedagogical competence.

Performance appraisal should be linked with coaching, reflection, and professional learning when the purpose is improvement. Student evaluations can provide one perspective, but institutions should consider participation patterns, measurement quality, classroom evidence, supervisory judgment, and teacher reflection when decisions have substantial professional consequences (Shaath & Abed, 2024; Vargas-Madriz & Nocente, 2023; Vereda-Alonso et al., 2024). The practical implication is not to maximize the number of indicators, but to combine sources that are valid for the decision being made. This approach also reduces the risk of equating administrative scores with the broader construct of teaching performance.

Digital investment should be accompanied by teacher capability development, technical support, and opportunities for behavioral adaptation. Digital leadership and competence are connected in the reviewed evidence, while technostress shows that the same technology can function as either a resource or a demand depending on the conditions of use (Uyun, 2023; Xin et al., 2025). Institutions introducing AI-supported appraisal should establish human review, validation procedures, data-protection safeguards, and clear limits on automated decision-making (Ersozlu et al., 2026; Syahrudin et al., 2025). These safeguards are especially important when system outputs may affect evaluation, promotion, or professional development.

Policy should support enabling conditions rather than rely exclusively on standardized performance targets. Access to professional learning, leadership development, digital infrastructure, teacher well-being, and context-sensitive appraisal standards are mutually relevant because the reviewed evidence locates performance across individual, organizational, and ecosystem levels. Evidence from school conditions, teacher well-being, and professional-development research further supports the need to align institutional support with the context in which teachers work and learn (Rahman, 2022; Sacré et al., 2023). National or regional standards can provide common principles, but implementation should be adapted to educational level, discipline, institutional capacity, and available evidence. Table 7 translates this multilevel logic into policy priorities for an enabling teaching-performance ecosystem.

Table 7. Policy priorities for an enabling teaching-performance ecosystem

Policy area	Policy priority	Policy direction	Supporting studies
Teacher professional development	Continuous and needs-based capability development	Connect training with identified instructional needs, supervised practice, teacher reflection, and follow-up evaluation	Jiang et al. (2024); Murwaningsih and Fauziah (2023); Neyra et al. (2021)
Educational leadership	Development-oriented leadership and supervision	Strengthen leaders' capacity to provide instructional direction, professional support, constructive feedback, and opportunities for teaching innovation	Al-Zoubi et al. (2023); Matos and Kasztelnik (2021); Neyra et al. (2021)
Digital equity and competence	Equitable access to infrastructure and pedagogically relevant digital development	Combine technology provision with digital training, technical support, and opportunities for behavioral adaptation	Tran and Truong (2026); Xin et al. (2025); Zhao et al. (2025)
Responsible AI governance	Transparent and human-supervised use of AI	Establish requirements for data protection, validation, explainability, professional judgment, and review of automated results	Ersozlu et al. (2026); Rosales-Anzola et al. (2026); Syahrudin et al. (2025)
Teacher well-being	Protection of psychological and occupational well-being	Monitor job satisfaction, resilience, workload, and technostress during organizational and technological change	Uyun (2023); Zaimoğlu and Dağtaş (2025)
Performance assessment	Developmental and multidimensional appraisal	Combine student feedback, classroom observation, teacher reflection, supervisory assessment, and evidence of professional development	Bazán-Ramírez et al. (2021); Bervell et al. (2024); Shaath and Abed (2024); Vargas-Madriz and Nocente (2023)
Context-sensitive standards	Adaptation across educational sectors and institutional settings	Maintain common teaching-quality principles while adapting indicators and support programs to educational level, discipline, and institutional context	Çakane et al. (2025); Friend et al. (2026); Yuen et al. (2022); Zhang et al. (2025)

Source: Authors' synthesis based on the 75-article Scopus corpus and Biblioshiny report (2026).

To translate these policy priorities into practice without assuming that one intervention will fit every setting, implementation should proceed in stages. A staged approach allows institutions to diagnose local needs, pilot proposed changes, monitor evidence from multiple sources, and adjust policies before wider scaling. Table 8 summarizes this implementation logic using activities and monitoring evidence already represented in the reviewed corpus.

Table 8. Proposed policy implementation and monitoring framework

Implementation stage	Principal activity	Suggested evidence for monitoring	Relevant evidence base
Contextual diagnosis	Assess professional-development needs, leadership support, digital access, appraisal practices, and teacher well-being	Teacher-needs assessment, infrastructure availability, participation in professional development, and baseline appraisal information	Murwaningsih & Fauziah (2023); Uyun (2023); Xin et al. (2025)
Policy design	Develop context-sensitive standards and align professional development, leadership, digitalization, and appraisal policies	Documented standards, clearly defined performance dimensions, professional-development plans, and AI-governance procedures	Bazán-Ramírez et al. (2021); Ersozlu et al. (2026); Rosales-Anzola et al. (2026)
Pilot implementation	Test the policy within selected educational settings before wider application	Teacher participation, implementation records, user feedback, technical-support records, and identified implementation barriers	Bervell et al. (2024); Syahrudin et al. (2025); Tran & Truong (2026)
Multisource monitoring	Monitor implementation using evidence from teachers, students, supervisors, classroom practice, and digital systems	Student feedback, teacher reflection, classroom observation, supervisory assessment, system-use information, and technostress indicators	Shaath & Abed (2024); Uyun (2023); Vargas-Madriz & Nocente (2023); Vereda-Alonso et al. (2024)

Implementation stage	Principal activity	Suggested evidence for monitoring	Relevant evidence base
Evaluation and adjustment	Examine differences across educational levels, disciplines, and institutional contexts	Comparison of implementation patterns and performance indicators across participating settings	Čakāne et al. (2025); Friend et al. (2026); Yuen et al. (2022); Zhang et al. (2025)
Responsible scaling	Expand policies only after reviewing feasibility, equity, validity, and unintended consequences	Evidence of accessibility, measurement validity, professional acceptance, data protection, and continued human oversight	Bazán-Ramírez et al. (2021); Ersozlu et al. (2026); Rosales-Anzola et al. (2026)

Source: Authors' synthesis based on the 75-article Scopus corpus and Biblioshiny report (2026).

Knowledge Diffusion and Responsible Use of Evidence

AI-supported assessment, text mining, learning analytics, and related digital methods require continuing methodological reflexivity. Researchers should report how automated outputs are generated, validated, and combined with human judgment, especially when those outputs influence teacher appraisal or professional decisions (Ersozlu et al., 2026; Rosales-Anzola et al., 2026; Syahrudin et al., 2025). Responsible use depends on data quality, model assumptions, contextual interpretation, and the possibility of meaningful human review. These requirements are part of research quality rather than optional technical details.

Limitations

This review has several limitations that define the scope of its conclusions. The evidence base was retrieved exclusively from Scopus and was restricted by publication period, subject area, document type, language, open-access status, and substantive relevance; the corpus is therefore a bounded representation rather than an exhaustive account of teaching-performance research. Restricting the subject areas to Psychology and Business, Management and Accounting supported the management and behavioral orientation of the review but may have excluded relevant studies indexed only in other subject categories, while the open-access criterion may have omitted subscription-based publications. The TCCM synthesis relied primarily on titles, abstracts, author keywords, and bibliographic metadata, so theories or methodological details not reported in those records could not be coded. The protocol did not apply a separate methodological quality or risk-of-bias instrument, and the included studies used heterogeneous definitions, measures, educational settings, and designs. Finally, 2026 represents a partial publication year because the Scopus search was completed on 13 September 2026. The findings should therefore be interpreted as a systematic mapping and structured synthesis of the selected corpus, not as a causal estimate or an exhaustive assessment of the field.

CONCLUSION

This hybrid systematic review combined bibliometric analysis with TCCM synthesis to examine 75 Scopus-indexed articles on teaching performance published from 2021 to 2026. Across the selected corpus, teaching performance was associated with teacher psychological and professional resources, organizational conditions, digital technologies, appraisal systems, and educational context. The evidence therefore supports treating teaching performance as a context-dependent organizational outcome rather than as a fixed characteristic of an individual teacher. This interpretation is consistent with the diversity of measures and settings represented in the review and with the limited number of studies that explicitly test cross-level mechanisms.

The main conceptual contribution is the multilevel HRM framework summarized in Table 6 and Fig. 7. It connects capability development, motivational and psychological resources, organizational opportunity and support, performance feedback, and responsible digital

governance within a single performance-management logic. Digital technologies occupy an enabling position in this framework because they can support instruction, feedback, appraisal, and professional learning, while their contribution remains conditional on competence, organizational support, system fit, and human oversight. The framework is an authors' synthesis and should be tested rather than treated as an empirically established causal model.

The review also identifies a clear methodological agenda. Longitudinal, multisource, multilevel, mixed-method, and intervention designs are needed to determine how teacher resources develop, how organizational conditions shape their enactment, and how feedback contributes to adaptation over time. Measurement research should distinguish teaching performance from adjacent constructs and validate evidence sources for the educational contexts in which they are used. Research on AI-supported assessment should include explicit validation, transparency, and human review procedures before automated outputs are used in consequential performance decisions.

For educational organizations, the practical implication is to align professional development, leadership, supervision, appraisal, digital capability, and teacher well-being rather than address performance through isolated interventions. For policy, context-sensitive standards and responsible digital governance are more consistent with the reviewed evidence than uniform technology-driven solutions. Within the limits of the search and coding protocol, the study positions teaching performance as a multilevel HRM outcome that emerges through interactions among teachers, organizations, technologies, and educational ecosystems. This position provides a testable basis for future research and a more coherent basis for interpreting performance-management evidence in educational organizations.

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Data availability: The study analyzes bibliographic records retrieved from Scopus under the search protocol reported in Sect. 3. Access to the underlying Scopus records is subject to the database provider's terms of use.

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