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A Systematic Review of University School Partnerships for Transformative Practicum Design

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Abstract

Despite sustained reform efforts, a substantial divide remains between university-based teacher education and the lived realities of classroom practice, creating persistent challenges for the preparation of future teachers. This systematic review examines how university–school partnerships strengthen practicum design to align coursework with classroom practice. Searches of ERIC, Scopus, Web of Science, and Google Scholar (2007–2025; last searched September 25, 2025) yielded 28 eligible studies from 14 countries. Screening and appraisal followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines using design-appropriate tools: the Mixed Methods Appraisal Tool (MMAT 2018), the Revised Cochrane Risk of Bias tool for randomized trials (RoB 2 2019), and an adapted Authority Accuracy Coverage Objectivity Date Significance (AACODS) checklist; appraisals informed confidence in the synthesis. Evidence was integrated through a mechanism-and-conditions approach consistent with Synthesis Without Meta-analysis (SWiM) principles. Five themes/mechanisms emerged: mentors as co-educators, structured reflection routines, professional identity formation and agency, reciprocal university-school learning, and sustainability shaped by duration, role clarity, and governance. These interact with enabling conditions such as mentor preparation, recognition, and institutional coordination to form the Collaborative Practicum Architecture (CPA), clarifying how boundary crossing, reflection, and reciprocity operate in effective partnerships. CPA identifies auditable, testable design levers for practicum improvement, offering actionable guidance for policymakers and educators. Limitations include the English-language scope and heterogeneity, which precluded a meta-analysis.

Introduction

Teacher education stands at a critical juncture. Despite decades of reform, a persistent theory–practice divide continues to undermine how new teachers learn to teach. University programs offer rich pedagogical and subject knowledge, yet these insights often fail to translate into the complex, unpredictable realities of classroom life [25, 52]. The result is a troubling disconnection: pre-service teachers struggle to bridge what they know with what they must do, and the system loses promising educators early in their careers [10].

This disconnect is not a marginal problem; it strikes at the core of teacher preparation worldwide. Fragmented practicum arrangements, inconsistent supervision, and weak collaboration between universities and schools leave pre-service teachers navigating complexity with limited guidance [5, 11, 18, 50, 51]. These structural weaknesses not only erode program coherence but also perpetuate the cycle of teacher dissatisfaction and attrition, threatening educational quality at large.

In response, university–school partnerships have emerged as one of the most promising pathways to reimagine teacher education. Framed as “third spaces” Zeichner, [52], these partnerships invite universities, schools, and pre-service teachers into reciprocal learning relationships, where theory and practice meet through shared inquiry and co-construction of knowledge [14, 9, 48]. When carefully designed, they can realign coursework and practicum, strengthen professional identity formation, and build sustainable ecosystems for educator development [16, 31, 43, 37].

Yet, how and why these partnerships succeed, or fail, remains poorly understood. Existing reviews describe their benefits but seldom unpack the mechanisms that foster genuine theory–practice coherence or the conditions that sustain collaboration over time.

To address this critical gap, the present review introduces the Collaborative Practicum Architecture (CPA): a conceptual and testable framework that links partnership processes to institutional and systemic conditions. Drawing on 28 studies from 14 countries, the CPA identifies practical design levers and measurable indicators that enhance program coherence, mentor development, and teacher retention.

This review addresses three questions:

1. What benefits do university–school partnerships provide for practicum and professional learning?
2. What challenges and barriers affect the implementation and sustainability of these partnerships?
3. Under what design features and enabling conditions do partnerships successfully bridge the theory–practice divide, including evidence from international models?

By explaining how partnerships work, why they matter, and what conditions make them thrive, this synthesis offers actionable guidance for universities, schools, and policymakers seeking to redesign teacher education for lasting impact. Ultimately, it argues that bridging the theory–practice divide is not merely an academic exercise; it is essential to cultivating confident, adaptive teachers capable of shaping the future of education.

Methodology

This systematic review followed the PRISMA 2020 guidelines Page et al. [38] to ensure transparency. The review methodology was designed to identify, select, appraise, and synthesize literature on university–school partnerships specifically in the context of pre-service teacher practicum. Below, we outline the search strategy, inclusion/exclusion criteria, screening procedures, data extraction, and quality appraisal.

Information Sources and Search Strategy

A comprehensive search was conducted from April to June 2025 and updated in September 2025 to ensure its accuracy and relevance. Four major databases were searched: ERIC, Web of Science, Scopus, and Google Scholar. Our draft search strategies were reviewed and refined in consultation with a professor in the field, following the Peer Review of Electronic Search Strategies (PRESS) 2015 guideline [32]. The review ensured correct use of Boolean operators, inclusion of relevant synonyms, use of controlled vocabulary (ERIC Thesaurus, Scopus subject headings), and consistent application of limits.

The time frame **(2007–2025)** was selected to capture contemporary models of university–school partnerships while allowing for the inclusion of seminal earlier contributions where relevant. Searches were restricted to **English-language publications**. The core search string combined teacher education and practicum terms with partnership-related terminology. For example, in the Web of Science and Scopus databases, the following search queries were applied: (“teacher education” OR “teacher preparation” OR

“pre-service teacher”) AND (practicum OR “field experience” OR “student teaching”) AND (partnership OR “school–university partnership” OR “professional development school” OR PDS).

Search syntax was adapted for each database (e.g., use of **ERIC Thesaurus** terms). In **Google Scholar**, retrieval was limited to the first **122 results** sorted by relevance, consistent with recommended best practices for systematic reviews. Additionally, **backward and forward citation tracking** of key studies was conducted, along with **manual searches** of leading journals such as *Teaching and Teacher Education, Journal of Teacher Education,* and *Asia-Pacific Journal of Teacher Education.* The selected databases, **Scopus**, **Web of Science**, **ERIC**, and **Google Scholar**, were chosen for their comprehensive coverage of peer-reviewed education research, including both international and regional studies, thereby ensuring the breadth and representativeness of the evidence base.

Searches were restricted to English-language publications because high-quality translation and methodological verification for non-English full texts were beyond available resources. To mitigate potential language bias, the review team used databases with broad international coverage, performed backward and forward citation tracking, and hand-searched leading journals that routinely publish work from multiple regions. Although this approach increases coverage, we acknowledge that excluding non-English studies may under-represent partnership models developed in non-Anglophone systems. This limitation is documented and discussed further in the limitations section.

Inclusion and Exclusion Criteria

We applied clear eligibility rules to ensure conceptual alignment and rigor (**Table 1**)

Table 1: Inclusion and Exclusion Criteria

Domain	Inclusion Criteria	Exclusion Criteria
Population/Focus	Pre-service teachers in practicum/student teaching embedded in a university–school partnership (including PDS, co-designed placements).	In-service teacher professional development only. Traditional placements with no collaborative design.
Study Type	Empirical (qualitative, quantitative, or mixed methods). Conceptual/theoretical papers, if they provide at least 2 pages of substantive analysis of partnership models or outcomes.	Articles mentioning partnerships only superficially (operationalized as less than 2 pages of analytic content). Editorials, commentaries, or reflective pieces lacking systematic/critical analysis.
Publication Source	Peer-reviewed journals or scholarly book chapters.	Grey literature (e.g., dissertations, reports, conference papers), unless widely cited as seminal.
Outcomes/Content	Reports on partnership models, mechanisms, benefits, challenges, or practicum-related outcomes.	Studies not reporting practicum-related data, outcomes, or models.
Language	English.	Non-English publications.
Time Frame	Published between 2007–2025, with allowance for earlier seminal contributions (where necessary)	Publications outside this period (unless identified as seminal and widely cited), which, when cited, were referenced only in the introduction or discussion sections

Screening and Selection Process

Two researchers independently screened the titles and abstracts. Discrepancies were resolved through discussion and, when necessary, by consultation with a third or fourth researcher. Searches conducted from April to June 2025 and updated in September 2025 identified 547 records in total across databases: ERIC (n = 128), Scopus (n = 142), Web of Science (n = 155), and Google Scholar (n = 122). After the removal of 123 duplicates, 424 unique records were screened. Of these, 78 full-text reports were assessed for eligibility, and 28 studies met all inclusion criteria and were retained for synthesis. The selection process is summarized in **Figure 2.**

Figure 1. PRISMA 2020 flow diagram showing the identification, screening, eligibility, and inclusion of studies in the review.

Data Extraction

A structured extraction form was developed to ensure consistency across studies. The following data were collected: author(s), year, country, research design, sample characteristics, description of partnership model, and key practicum-related findings. Two researchers conducted the extraction, and entries were independently verified by two other researchers (92% agreement). Discrepancies were resolved collaboratively. **Table 2 (Appendix A)** reports study characteristics for all 28 included studies and contains the complete set of extraction fields.

Quality Appraisal

Given the methodological diversity of the studies included, design-appropriate appraisal instruments were employed. Qualitative and mixed-methods studies were evaluated using the Mixed Methods Appraisal Tool (MMAT) Hong et al. [19] the single randomized block trial with the Cochrane Risk of Bias 2 tool (RoB 2) Sterne et al. [41], and conceptual or theoretical papers with an adapted Authority, Accuracy, Coverage, Objectivity, Date, Significance (AACODS) checklist [45]. Numeric scoring was not undertaken; instead, domain-level judgments informed an overall quality classification of high, moderate, or low. Confidence in qualitative findings was assessed using the GRADE-CERQual approach Lewin et al. [28], considering methodological limitations, coherence, adequacy, and relevance. Detailed appraisals appear in **Table 3**, with the GRADE-CERQual evidence profile provided in **Table 4** (Appendix B).

Table 3. Study designs and quality appraisal summary (n=28)

Study Design Category	Number of Studies	Appraisal Tool(s)	Overall Quality Summary	Common Limitations	Studies (some)
Qualitative (case studies, ethnographies, interviews)	19	MMAT (2018)	Mostly moderate rigor: multi-case analyses rated high due to rich data plus triangulation. Strengths: thick description, multi-actor perspectives. The remaining studies were rated moderate, limited by self-report data, brief practicums, limited triangulation, and context-specific findings.	Reliance on self-report, short practicum windows; limited triangulation/longitudinal follow-up; context-bound findings.	[1] [2] [3] [4] [14] [23]
Quantitative (randomized block design)	1	RoB 2	Moderate quality: strong design logic; external validity constrained by small sample and contextual variability.	Underpowered sample: implementation fidelity not fully reported; limited generalizability.	[29]
Mixed-Methods (integrated designs)	2	MMAT (2018)	Both moderate; one approaching high due to the strong integration of qualitative plus quantitative strands.	Small samples; imbalance across components; short time horizons; limited sensitivity analyses.	[21] [15]
Conceptual/Theoretical (reviews, position papers, analytic essays)	6	Adapted AACODS rubric	Two high, three moderate, one low: high	Limited empirical grounding; occasional normative framing;	[26] [33]

	pieces offer coherent frameworks; lower-rated works are reflective with limited coverage.	uneven attention to Global South contexts.	[46] [39]

Data Synthesis

We employed thematic synthesis, Thomas & Harden [43], guided by Synthesis Without Meta-analysis (SWiM) principles, Campbell et al. [6], to accommodate the methodological diversity of included studies. The objective was to integrate qualitative, mixed-methods, and conceptual findings into coherent analytical themes aligned with the research questions. Three reviewers independently conducted open coding of an initial subset (20%) of studies to identify recurring patterns related to partnership design, processes, and outcomes. Codes were derived inductively from study findings, discussion sections, and author interpretations, while being informed by sensitizing concepts from existing theory (e.g., mentorship, reflection, boundary crossing).

Following initial coding, reviewers compared and reconciled their code lists to develop a shared codebook defining each code and illustrative excerpts. This codebook guided full-text analysis across the included studies. As new patterns emerged, codes were iteratively refined, merged into subthemes, and synthesized into five overarching themes capturing the mechanisms and structural conditions of effective partnerships.

To ensure analytic accuracy, we applied constant comparison throughout the synthesis, revisiting earlier studies when new insights arose. Divergent or contradictory findings were retained to enhance thematic strength. Reflexive notes documented analytic decisions and potential bias, while cross-checks across study type, country, and practicum model confirmed consistency and contextual variation. **Table 5** summarizes the hierarchical coding progression, showing how inductive codes were clustered into subthemes and integrated into final analytical themes.

Table 5. Development of themes in thematic synthesis

Data Excerpt / Code (from primary studies)	Subtheme (clustered meaning unit)	Final Synthesized Theme	Supporting Studies
Mentor teachers received preparatory workshops and co-planned lessons with university faculty.	Structured mentor preparation and co-teaching	Mentorship, Reflection, and the Theory–Practice Nexus	[1], [2], [4], [14], [20], [23]
Joint debriefings helped us connect classroom incidents to theory and adapt strategies. (third space)	Collaborative reflection and inquiry cycles	Mentorship, Reflection, and the Theory–Practice Nexus	[8], [12], [33], [34], [40], [43]
Being treated as a colleague made me feel like a real teacher.	Belonging and professional agency	Professional Identity Formation	[3], [6], [26], [27], [33], [49]
Mentor recognition and shared leadership helped me see myself as a contributor.	Reciprocal mentorship and legitimacy	Professional Identity Formation	[1], [23], [24], [29], [30], [46]
University staff and teachers designed lessons together, learning from each other's expertise.	Co-design and reciprocal innovation	Innovation, Mutual Learning, and Systemic Impact	[14], [15], [20], [33], [40]
Residency partnerships strengthened retention and diversified the teacher pipeline.	Systemic and institutional impact	Innovation, Mutual Learning, and Systemic Impact	[1], [3], [22], [29], [35], [36], [39]
Strong leadership, trust, and shared governance were critical for sustaining collaboration.	Distributed leadership and shared governance	Challenges and Strategies for Effective Partnerships	[1], [2], [4], [11], [23], [29], [30], [36], [40]
Short placements limited impact; longer, curriculum-integrated residencies were more effective.	Structural conditions and practicum duration	Challenges and Strategies for Effective Partnerships	[6], [8], [24], [27], [33], [35], [43]
Local policy context and resource availability shaped what partnerships could achieve.	Contextual adaptation and equity	International and Contextual Perspectives on Partnership Models	[1], [2], [6], [8], [14], [15], [21], [29], [33], [34], [35], [43], [49]

Reflexivity and Transparency

The review team comprised educators with academic backgrounds in teacher education. Acknowledging that our professional perspectives might shape interpretation, we maintained a reflexive stance throughout the review process. Each stage, from screening to synthesis, was accompanied by regular team discussions to identify assumptions, clarify reasoning, and ensure balanced interpretation. Differences in coding and theme development were resolved through collaborative dialogue and consensus, allowing for

interpretive richness rather than mechanical agreement. This collegial process helped ensure that themes reflected the collective evidence base rather than individual bias.

To enhance analytic transparency and consistency, coding decisions and thematic refinements were reviewed collaboratively as the synthesis progressed. This iterative, team-based approach provided a coherent and transparent basis for analysis and aligns with recognized standards for qualitative review rigor [44, 13]

Results

The 28 included studies spanned 14 countries (Australia, Norway, Turkey, New Zealand, United States, Ireland, Brazil, Chile, Myanmar, Vietnam, Canada, South Africa, Scotland, Austria), representing both Global North and South contexts with uneven coverage. Most were qualitative case studies (n = 19), supplemented by two mixed-methods designs, one randomized block design, and six conceptual papers. Qualitative richness enhanced contextual insight but limited generalizability, while conceptual works provided theoretical depth with limited empirical grounding. Confidence appraisals (GRADE-CERQual) guided interpretation: mentorship and reflection mechanisms drew on high-moderate confidence evidence, whereas identity, systemic, and contextual dimensions rested on moderate or lower confidence. Generally, evidence quality was moderate, with greater weight given to multi-case and methodologically transparent studies. An illustrative mapping from first-order data to subthemes and final themes is shown in **Table 5,** and the full evidence confidence profile is presented in **Table 4** (Appendix B).

Mentorship, Reflection, and the Theory–Practice Nexus

Across twelve studies, bridging the theory–practice divide depended on two interconnected features: mentors who were formally prepared and positioned as co-educators in co-designed practicum structures, and structured reflection (e.g., inquiry cycles, workshops) that supported both pre-service teachers' learning and mentors' professional growth. Mentors positioned as co-educators translated theoretical frameworks into classroom strategies while also channeling practice-based insights back to university discourse, thereby strengthening pre-service teachers' pedagogical reasoning [1, 2, 4, 14, 20, 23]. Similarly, McNeilly et al. [33]found that when mentors are trained as co-educators and supported to model reflective practice, pre-service teachers more effectively integrate theoretical learning into classroom action. These roles were most effective when partnerships formalized mentor preparation, co-designed practicum structures, and aligned guidance with coursework; by contrast, weak communication, short placements, and unclear roles often undermined outcomes [34, 43]

Reflection acted as the glue binding theory and practice: structured debriefings, inquiry cycles, and third-space workshops enabled pre-service teachers to analyze teaching incidents, connect them with theory, and develop adaptive strategies [8, 12, 40]. When collaborative and institutionalized, reflection fostered not only pre-service teacher adaptability but also mentors' and faculty members' professional growth. Together, mentorship and reflective practice emerged as central engines of partnership, transforming practicum into a site of inquiry and sustained professional learning.

Professional Identity Formation

Twelve studies showed that university–school partnerships decisively scaffold pre-service teachers' professional identity by positioning them as emerging colleagues rather than peripheral visitors. Consistent with this, McNeilly et al. [33] observed that collaborative practicum structures emphasizing reflection and feedback foster pre-service teachers' confidence and emerging professional identity. In field-based and hybrid models, pre-service teachers reported expanded agency and belonging, often describing themselves as "classroom-ready" [6, 26, 27].

In Norway, designated partnership schools legitimized pre-service teachers as teachers, contrasting sharply with non-partner placements, where candidates felt marginal [23]. In Australia, long-term partnership models underscore that mutuality, reflective collaboration, and relational trust are vital for fostering professional growth, yet also revealed that without strong coordination, such partnerships risk uneven support and outcomes [1, 24]. Partnerships scaffolded identity development through inclusive mentorship, exposure to multiple role models, and reflective dialogue [30, 46]. In Chile, collaborative projects reduced isolation and supported a shift from "student" to "teacher" [49].

However, inconsistent mentoring, unclear roles, and structural inequities sometimes weakened identity development [3]. Overall, identity emerged as a socially constructed, relational process: when pre-service teachers were entrusted with authentic responsibilities and supported within communities, they developed confidence, resilience, and long-term professional commitment [29].

Innovation, Mutual Learning, and Systemic Impact

Twelve studies, including conceptual papers, showed that partnerships functioned as innovative ecosystems, with co-designed curricula, embedded coursework, and inquiry teams that shifted teacher preparation from one-way transmission to reciprocal learning. Co-designed structures, embedded coursework, liaison roles, and inquiry teams aligned supervision, assessment, and mentoring expectations across sites [20, 14, 40]. McNeilly et al. [33] similarly showed that professional development school models can operate as innovation hubs where university research and school practice mutually inform one another, extending innovation beyond individual classrooms. These arrangements fostered mutual learning: schools built inquiry cultures while universities refreshed curricula with practice-based cases [22, 35, 36, 39].

At a systemic level, extended residency models diversified pipelines, improved certification outcomes, and strengthened retention in high-need schools [29]. In low-resource contexts, partnerships acted as cost-effective levers for curriculum reform despite governance constraints [15].

Yet innovation was fragile without clarity, workload equity, and relational trust; when these conditions were absent, impacts were attenuated [1, 3]. Still, when reciprocity was genuine and roles explicit, partnerships became continuous professional learning ecosystems advancing quality, equity, and retention.

International Perspectives on Partnership Models in Teacher Education

Across fourteen studies, partnership models reflected common principles of reciprocity and collaboration but were shaped by distinct systemic and cultural contexts. In Canada, professional development school models exemplify shared governance and sustained university–school collaboration McNeilly et al. [33], whereas partnerships in emerging contexts are often short-term, project-based, or externally funded.

In Australia and New Zealand, extended immersion and co-designed practicum structures improved alignment between theory and practice, though sustainability depended on institutional support and workload equity [1, 14, 35]. In Nordic Europe, joint-faculty and partnership-school models emphasized equal status and boundary-crossing roles, highlighting trust and leadership as prerequisites for effectiveness [2, 8]. Across the Americas, hybrid residencies and professors-in-residence fostered culturally responsive pedagogy, candidate retention, and mentor professionalism in high-need schools [6, 29].

In Asia, Africa, and Latin America, cooperation agreements, iterative mentoring, and curriculum-linked practicum advanced theory–practice integration despite policy or resource challenges [16, 21, 34, 43, 49]. Collectively, these examples illustrate that while principles of reciprocity, trust, and shared design are universal, models must be contextually responsive, with success shaped by cultural norms, policy frameworks, and systemic supports.

Challenges and Strategies for Effective Partnerships

Sixteen studies highlighted recurring challenges, resource constraints, role ambiguity, communication gaps, and power asymmetries that, if unaddressed, undermined the effectiveness of partnerships. Resource and workload pressures were pervasive, as mentoring and coordination required time and funding often unavailable in schools; successful models mitigated this through embedded roles and sustained funding [1, 29, 30].

Role ambiguity and weak communication generated friction when expectations diverged, but structured agreements and liaison positions reduced such tensions [4, 11, 36]. Power asymmetries persisted when universities dominated, but reciprocity was strengthened when school mentors were recognized as co-educators [2, 40]. Variability in mentoring quality meant outcomes often depended on “luck of placement,” a challenge partly addressed through structured mentor selection and professional development [23, 27]. Finally, short placements and unstable policies constrained impact, pointing to the need for extended, curriculum-integrated practicum and institutionalized coordination [8, 43].

Importantly, some tensions proved generative: when openly addressed, they became opportunities for dialogue and innovation, strengthening coherence and confidence among pre-service teachers [6, 24, 35]. Across the analysis, these five themes suggest that effective partnerships rely on an integrated architecture of mentorship, reflection, identity scaffolding, reciprocal innovation, and systemic supports. Rather than isolated interventions, it is the depth and coherence of collaboration that determine impact. In Canada, McNeilly et al. [33] highlighted that positioning the practicum at the center of teacher education, supported by trained mentors and shared reflection, can mitigate the recurring disconnect between universities and schools.

To illustrate the interrelationships among the five analytical themes, **Table 6** presents a Cross-Theme Citation Matrix summarizing the distribution and overlap of the 28 studies across thematic categories. This table clarifies how certain anchor studies (e.g., [1, 33, 29] underpin multiple domains, demonstrating conceptual coherence across the synthesis.

Table 6: Cross-Theme Citation Matrix

Citation	Mentorship & Reflection	Professional Identity	Innovation & Mutual Learning	International Perspectives	Challenges & Strategies	Total Themes Appeared In
Allen, et al. (2013)	√	√	√	√	√	5
Andreasen (2023)	√			√	√	3
Bakioglu et al. (2024)		√	√		√	3
Bernay et al. (2020)	√				√	2
Buelow (2024)		√		√	√	3
Christophersen, et al. (2024)	√			√	√	3
Farrell (2023)					√	1
Ferraz, et al. (2020)	√					1
Grudnoff, et al. (2016)	√		√	√		3
Halász & Thant Sin (2023)			√	√		2
Howell, et al. (2013)	√		√			2
Huong et al. (2020)				√		1
Jakhelln & Postholm (2022)			√			1
Jenssen & Haara (2024)	√	√			√	3
Jones et al. (2016)		√			√	2
Lee (2018)		√				1
Lees & Kennedy (2017)		√			√	2
Little et al. (2024)		√	√	√	√	4
Ma & Green (2023)		√			√	2
McNeilly et al. (2022)	√	√	√	√		4
Moeti (2025)	√			√		2
Nash et al. (2022)			√	√	√	3
Oates & Bignell (2022)			√		√	2
Resch, et al. (2022)			√			1
Schnellert & Kozak (2023)	√		√		√	3
Thant Sin (2021)	√			√	√	3
Walkington (2007)		√				1
Zaccarelli et al. (2025)		√		√		2

The cross-theme mapping in **Table 6** provides the evidential basis for the Collaborative Practicum Architecture (CPA) presented in **Figure 2,** which integrates four core mechanisms, mentorship as boundary crossing, structured reflection, professional identity formation, and reciprocal learning, and two enabling conditions, institutional coherence and systemic support, to explain how partnerships generate coherence between coursework and practicum.

Figure 2. The Collaborative Practicum Architecture (CPA) Model

The Collaborative Practicum Architecture (CPA) conceptualizes university–school partnerships as co-productive ecosystems that align coursework and classroom practice through four interactive mechanisms:

Mentorship as Boundary Crossing, Structured Reflection, Professional Identity Formation, and Reciprocal Learning, supported by two enabling conditions: Institutional Coherence and Systemic Support.

These elements function dynamically: mentors operate as co-educators bridging theory and practice; reflection routines institutionalize inquiry and dialogue; professional identity formation connects belonging with professional legitimacy; and reciprocal learning fosters mutual growth between university and school actors. The enabling conditions provide the structural and policy scaffolding that ensures coherence, sustainability, and accountability across institutional boundaries.

While **Figure 2** presents the CPA as a conceptual architecture linking key mechanisms and enabling conditions, the model's practical value lies in its capacity to guide observation and evaluation. To complement the diagram's theoretical overview, the following section translates each element into operational indicators that can be identified, documented, and assessed in real partnership contexts. This moves the CPA from an abstract model of collaboration toward a usable framework for design, inquiry, and improvement.

Operationalizing the Collaborative Practicum Architecture (CPA)

To enhance the CPA's practical utility, its mechanisms and enabling conditions can be rendered as observable indicators that support both research evaluation and program design. Rather than restating the components already depicted in **Figure 2, Table 7** provides a concise guide for how these mechanisms and conditions manifest empirically in teacher education partnerships.

The indicators presented in **Table 7** were derived through an iterative analytic mapping process during synthesis. For each of the 28 included studies, the coded excerpts underpinning the six CPA components were re-examined to identify recurring, observable actions or structures that illustrated how each mechanism operated in practice. These empirical patterns were then cross-checked against established partnership literature (e.g., [9, 25, 42, 52]) to ensure conceptual validity and transferability. The resulting indicators therefore represent empirically grounded, literature-aligned descriptors rather than prescriptive measures.

Table 7. Operational indicators for the Collaborative Practicum Architecture (CPA)

CPA Element	Operational Definition	Possible Indicators / Evidence Sources	Intended Outcomes
Mentorship as Boundary Crossing	Mentors act as co-educators, translating theory into practice and informing university curriculum.	Joint lesson planning, mentor–faculty debriefs, mentor preparation sessions referencing theory.	Improved coursework–practice alignment; mentor professional learning.
Structured Reflection	Institutionalized routines linking classroom incidents to theoretical reasoning.	Inquiry journals, video debriefs, reflection seminars, and structured feedback protocols.	Enhanced pedagogical reasoning; adaptive instructional decision-making.
Professional Identity Formation	Pre-service teachers experience legitimacy and agency within authentic teaching roles.	Co-teaching assignments, reflective self-assessments, and mentor evaluations referencing belonging.	Strengthened professional confidence, efficacy, and retention intention.
Reciprocal Learning	University and school partners engage in a two-way knowledge exchange that informs pedagogy and curriculum.	Co-designed lesson units, shared inquiry projects, reciprocal feedback documentation, and cross-site seminars.	Joint professional learning; iterative improvement of teaching and coursework.
Institutional Coherence *(Enabling Condition)*	Governance alignment and clarity in partnership roles, assessment, and communication.	Partnership agreements, shared rubrics, liaison meeting records, and dual supervision structures.	Sustained coordination; reduced role ambiguity.
Systemic Support *(Enabling Condition)*	Policy recognition, workload allocation, and resource provision that sustain partnership activity.	Mentor time allowances, dedicated funding streams, and policy statements referencing collaboration.	Program longevity and scalability.

Discussion

This review synthesized evidence from 28 studies on how university–school partnerships shape practicum in pre-service teacher education. Five interconnected themes, mentorship and reflection, professional identity formation, reciprocal learning and innovation, contextual variation, and sustainability challenges, indicate that partnerships function most effectively when designed as coherent collaborative arrangements rather than ad hoc placements. To interpret these results, we organize the discussion with reference to the Collaborative Practicum Architecture (CPA), which specifies mechanisms and enabling conditions for strengthening theory–practice coherence (see **Figure 2**). Building on the conceptual relationships illustrated in **Figure 2** and the operational indicators summarized in **Table 7,** this discussion interprets how the six components of the CPA collectively generate coherence between coursework and practicum across varied institutional contexts. Cross-theme mapping (**Table 6**) revealed that several anchor studies informed multiple mechanisms, reinforcing the integrative logic of the Collaborative Practicum Architecture.

The CPA builds on, but also extends, earlier conceptualizations such as Professional Development Schools (PDS) (Darling-Hammond, 2014) and Hybrid Spaces (Zeichner, 2010). PDS frameworks emphasize the

institutional and reform-oriented dimensions of partnership, focusing on school improvement and shared responsibility for teacher preparation. Hybrid Space theory, meanwhile, foregrounds the epistemic and cultural entanglement between practitioner and academic knowledge, offering a framework for understanding their mutual constitution. CPA advances these models by specifying concrete mechanisms: boundary crossing, reflection routines, role clarity, and governance alignment through which collaboration produces observable outcomes. Rather than depicting partnership as a structure (as in PDS) or a metaphorical space (as in Hybrid Spaces), CPA offers a design-oriented and auditable architecture that identifies how particular configurations of roles, routines, and enabling conditions yield coherence between coursework and practicum.

Evidence across contexts indicates that mentors positioned as co-educators support the bidirectional movement of knowledge between coursework and classrooms, translating theoretical constructs into instructional decisions and feeding practice-based insights back to university programs [2, 4, 23]. Studies associate such positioning with stronger pedagogical reasoning, greater instructional confidence, and indications of classroom readiness among candidates [1, 14]. These functions depend on clearly defined roles and preparation for mentoring, which reduces variability attributable to placement context.

Deliberate routines, third-space seminars, inquiry projects, and guided debriefings create opportunities to interrogate classroom incidents through theoretical lenses and to adjust practice accordingly [8, 12]. Convergent findings point to the value of institutionalizing reflection rather than leaving it to individual discretion, consistent with work on hybrid spaces where practitioner and academic knowledge intersect [52]. In contrast to the broader cultural emphasis of Hybrid Spaces, CPA highlights the organizational structures that make reflection a sustained, structured, and assessable process. When reflection is institutionalized in this way, the connections between coursework and practicum become more visible to candidates and mentors.

In arrangements that coordinate expectations and feedback, pre-service teachers report stronger belonging and agency and are positioned as legitimate contributors to instructional work [6, 23, 30]. Reciprocal learning, schools adopting research-informed strategies while universities integrate practice-based cases appear in inquiry teams, co-designed curricula, and liaison roles [29, 35, 39]. These processes clarify how identity development is socially situated and contingent on opportunities to participate meaningfully in pedagogical decision-making.

Partnership durability and access to learning opportunities are associated with formal agreements, shared leadership, and role clarity [4, 36]. Common constraints include short placements, limited recognition for mentors, and uneven communication. Studies linking extended residencies and structured mentor preparation to more consistent guidance suggest that duration and role design are consequential levers [1, 8, 46]. Variability in mentoring quality, the “luck of placement” problem, underscores the need for systematic selection, preparation, and workload recognition.

Implementation of similar partnership principles differs by policy settings, resource levels, and organizational cultures. In low-resource systems, cluster mentoring and digital collaboration have been used to support professional learning with constrained inputs [15, 34]. These adaptations indicate that while

the mechanisms identified in this review are portable, their operationalization depends on local enabling conditions and governance arrangements.

Implications for teacher education programs. Programs can operationalize CPA through five practical moves. First, formalize mentor preparation with role-specific training and ongoing support so mentors function as co-educators rather than supervisors of convenience. Second, allocate protected time for mentoring, co-planning, and feedback to reduce the variability introduced by workload pressures. Third, embed scheduled inquiry and reflection routines (e.g., structured debriefs, inquiry cycles) that explicitly link classroom incidents to theoretical constructs. Fourth, establish cross-institutional governance alignment (shared assessment rubrics, liaison roles, partnership agreements) to coordinate expectations and accountability. Fifth, monitor core indicators of coursework–practice alignment, candidate enactment and learning, mentor development, and early-career retention to make partnership quality auditable over time.

The CPA is well-suited to the Asia–Pacific region, where policy variability, workload intensification, and equity commitments shape partnership design and feasibility. Evidence from Australia and New Zealand points to the value and fragility of extended, co-designed practicum structures under variable institutional support [1, 14]. Studies from Southeast Asia (e.g., Vietnam and Myanmar) highlight how resource constraints and governance shifts require adaptable mentoring arrangements and pragmatic coordination mechanisms [15, 21, 43]. By specifying mechanisms (boundary crossing and reflection) and enabling conditions (role clarity, recognition, and shared governance), CPA provides a transferable design logic that can be calibrated to local policy frameworks, workload norms, and equity goals across diverse Asia–Pacific systems.

Organizing convergent findings within a mechanism-and-conditions model addresses critiques that partnership accounts are primarily descriptive. The review specifies how boundary crossing, structured reflection, professional identity formation, and reciprocal learning are associated with practicum outcomes and identifies the institutional and system supports that sustain them. Program and policy implications follow: (a) integrate practicum with coursework through scheduled inquiry routines; (b) formalize mentor roles with preparation, recognition, and protected time; (c) establish cross-institutional governance to align assessment, supervision, and feedback; and (d) evaluate partnerships using indicators that track coherence (coursework–practice alignment), candidate learning, mentor professional growth, and early-career retention [10, 35]. These implications derive directly from the patterns observed across studies rather than from prescriptive assumptions.

Finally, situating the synthesis alongside frameworks of professional capital and communities of practice clarifies how local routines can connect to system-level outcomes when specified conditions are present [17, 47]. Under such conditions, university–school partnerships position the practicum as a sustained site of reciprocal learning and professional growth, with effects observable at individual, institutional, and system levels.

Conclusion

This review consolidates dispersed evidence on university–school partnerships by specifying, through the Collaborative Practicum Architecture (CPA), how mechanisms and enabling conditions jointly organize practicum **(Figure 2)**. In doing so, it translates broad "third space" claims into an operational account that can be designed against and evaluated. Whereas prior models, such as PDS, emphasize partnership structures and Hybrid Spaces emphasize cultural mediation, CPA integrates these perspectives into a coherent architecture that links relational, organizational, and systemic dimensions to measurable outcomes.

Practically, the CPA provides levers for program design: align coursework and school practice via scheduled inquiry routines; formalize and prepare mentor roles with recognized time; and coordinate assessment, supervision, and feedback through cross-institutional governance. Accordingly, progress can be monitored using concrete indicators, coursework–practice alignment, candidate learning and enactment, mentor development, and early-career retention, so that partnership work is auditable rather than descriptive.

Conceptually, the contribution is a mechanism-and-conditions specification that distinguishes portable principles from context-dependent implementation. Methodologically, the model yields testable propositions about how activation of individual levels (e.g., duration, role clarity, reflection routines) and their interactions are associated with outcomes, including mediation via professional identity formation and reciprocal learning. The review moves the field beyond descriptive accounts toward cumulative, design-oriented inquiry. The Collaborative Practicum Architecture (CPA) offers a practical blueprint for policymakers and teacher educators to align coursework, mentoring, and governance within coherent partnership structures. Applying CPA principles can help systems design practicum models that balance accountability with reciprocal learning and sustained mentor development. Looking ahead, embedding CPA-informed approaches within teacher education reform agendas could strengthen institutional capacity, improve practicum quality, and foster a culture of shared responsibility for professional growth.

Limitations

This review is bounded by methodological, linguistic, and evidentiary scope. Restricting searches to English-language, peer-reviewed sources may have excluded relevant studies published in other languages, particularly from African and Latin American contexts, and from Asian regions beyond those represented. While studies from Myanmar and Vietnam were included, the broader diversity of non-Anglophone partnership models remains underrepresented. Although mitigation steps included PRESS-reviewed strategies, dual screening, and design-specific appraisal, language and publication bias cannot be fully discounted. Variation in study design, duration, and reporting limited triangulation and precluded meta-analysis, guiding the use of thematic synthesis under SWiM principles. Further validation of the CPA will require multilingual and regionally diverse longitudinal designs that integrate observational, survey, and outcome data to test its applicability, causal mechanisms, and transferability across different institutional and cultural settings.

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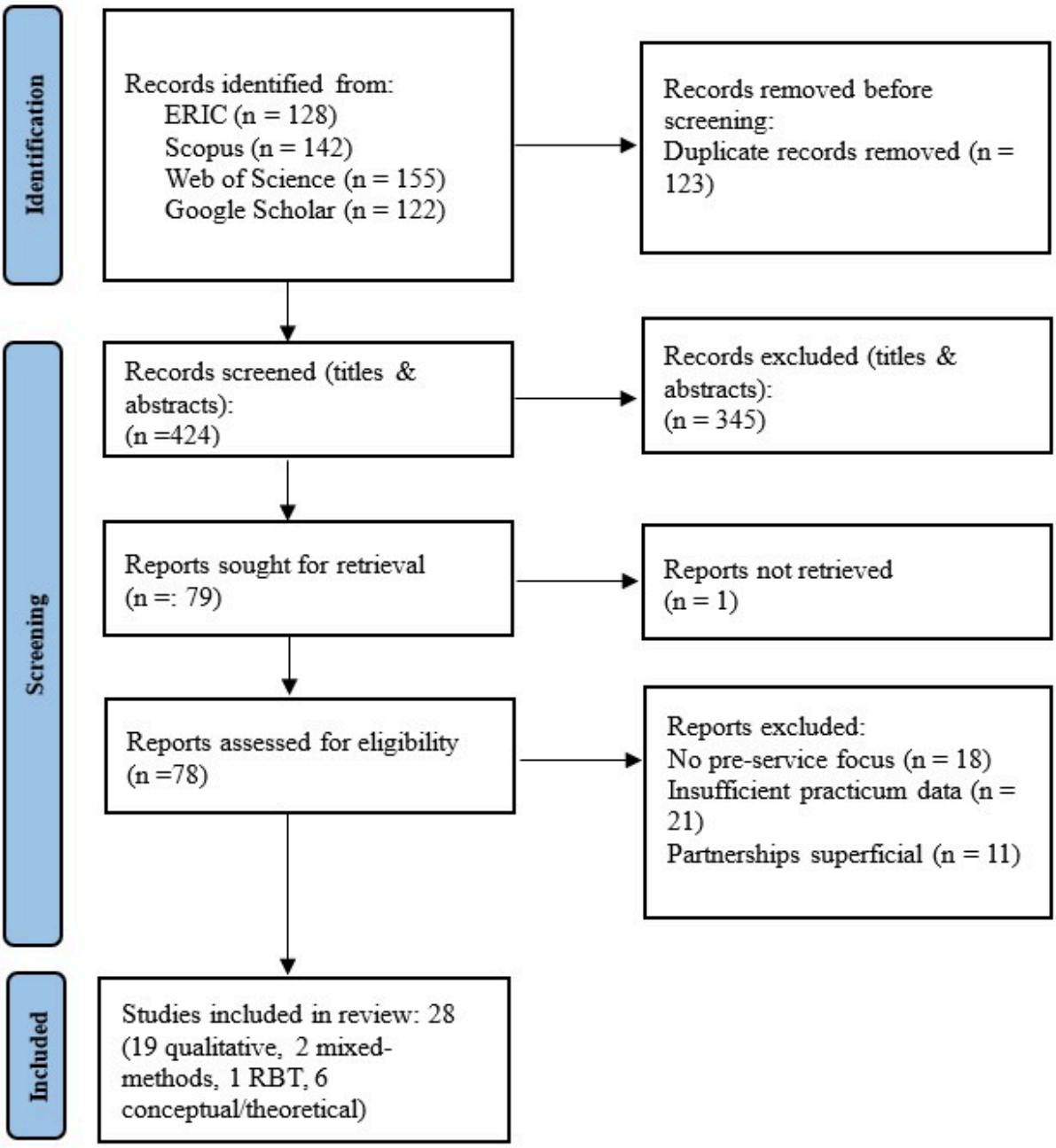
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Figures



Source: *Page et al. [38]*

Figure 1

PRISMA 2020 flow diagram showing the identification, screening, eligibility, and inclusion of studies in the review.

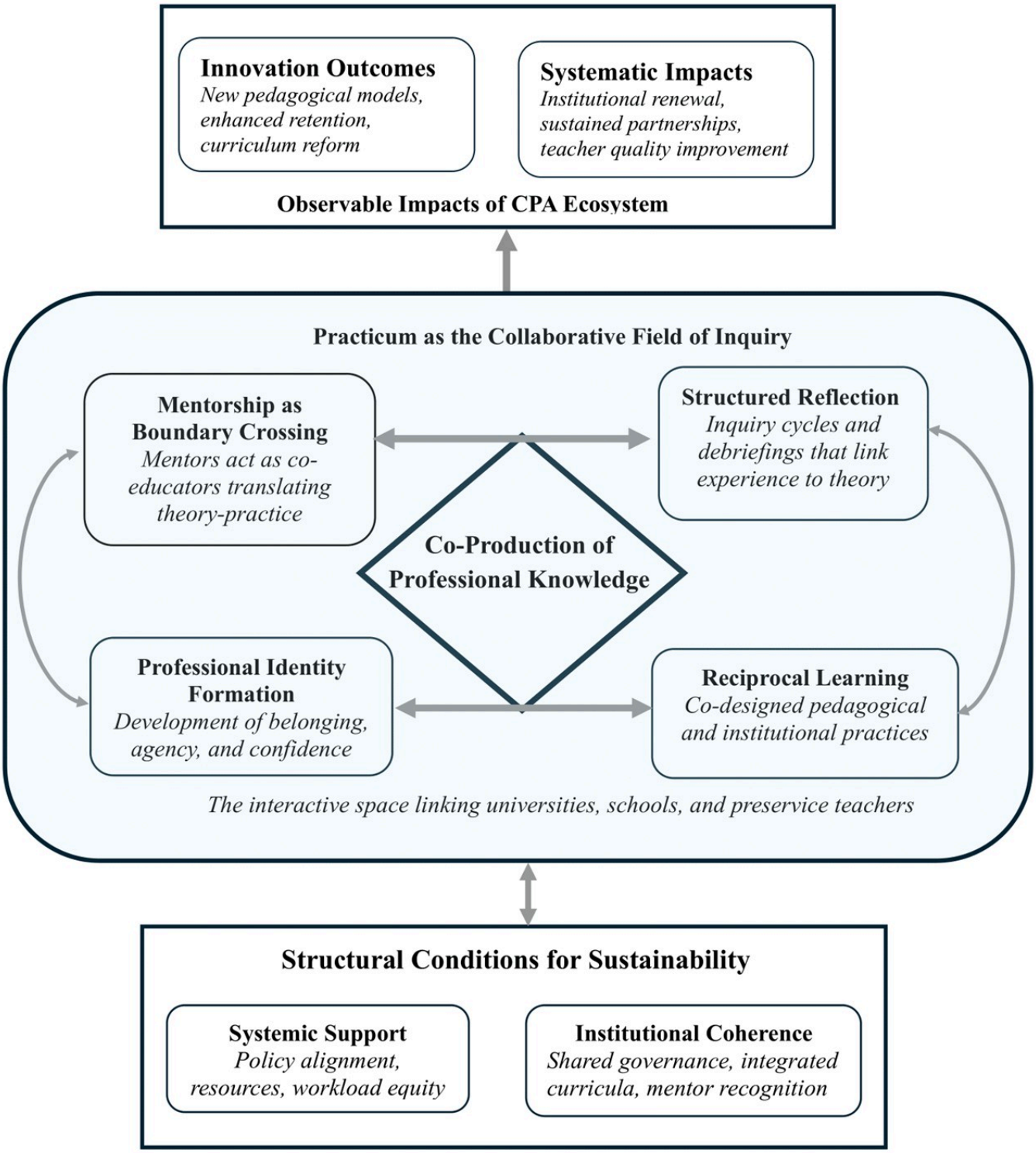


Figure 2

The Collaborative Practicum Architecture (CPA) Model

Supplementary Files

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- Appendix.docx