

Preparation of Preschool Teachers for Real-World Educational Challenges: A Systematic Review

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ABSTRACT

The preparation of preschool teachers has become increasingly complex as early childhood educators are required to respond to diverse learners, inclusive education demands, rapid technological advancement, and heightened professional expectations in real-world classroom contexts. Despite these challenges, concerns remain regarding the extent to which existing teacher education and professional development programs adequately prepare preschool teachers for contemporary practice. This article presents a Systematic Literature Review (SLR) that synthesizes empirical research on how preschool teachers are prepared to face real-world educational challenges. Following the PRISMA framework, twelve studies published between 2020 and 2025 were systematically identified from Scopus, Web of Science, ERIC, and Google Scholar. Data were extracted and thematically analysed to identify key patterns, strengths, and gaps in the literature. The findings reveal four interrelated themes: (1) practice-based pedagogical preparation, (2) technological integration and digital pedagogy readiness, (3) cross-cultural and inclusive perspectives, and (4) professional development and systemic challenges. Across studies, preparation models that emphasize coached practice, mentored practicum, and sustained professional learning communities demonstrate stronger transfer to classroom practice than theory-driven or one-off training approaches. However, persistent gaps remain, particularly in preparing teachers for ethical and age-appropriate technology use, supporting culturally and linguistically diverse learners in low-resource contexts, and ensuring sustainable professional development structures. This review highlights the need for a shift toward practice-centred, context-responsive, and ethically grounded teacher preparation frameworks, and offers implications for policymakers, teacher education institutions, and early childhood practitioners seeking to strengthen preschool teacher readiness for real-world educational demands.

Keywords: Preschool teacher preparation; Early childhood education; Practice-based learning; Digital pedagogy; Professional development

INTRODUCTION

The preparation of preschool teachers has become a critical priority in contemporary education, as the role of early childhood educators is increasingly shaped by the complexities of modern classrooms. Preschool teachers today are expected to go beyond foundational pedagogical practices to navigate a range of real-world challenges, including learner diversity, inclusive education, technological integration, and the growing societal demand for high-quality early learning (Nguyen, Watts, Duncan, Clements, & Sarama, 2023). These demands reflect a global shift in early childhood education, where teacher competence is central to ensuring equitable and effective learning outcomes.

Teacher education programs serve as the foundation for equipping educators with the knowledge, skills, and dispositions necessary to meet these challenges. However, existing evidence suggests that many programs remain limited in their capacity to prepare teachers for the realities of classroom practice. Liu and Mohamed

(2025), for instance, emphasize that teacher preparation must extend beyond theoretical instruction by incorporating community-based knowledge and cultural responsiveness, enabling teachers to connect children's social and cultural experiences with pedagogy. Similarly, Wright and Baker (2025) argue that bilingual and inclusive approaches are essential in fostering an education system that reflects the linguistic and cultural diversity of preschool learners.

The rapid advancement of technology further compounds the need for teachers to develop digital competencies. Studies highlight the transformative potential of artificial intelligence (Demircioğlu, 2025) and augmented reality (Ramalaksmi, Rajesh, & Murugan, 2025) in early childhood education. However, many teacher preparation programs lack sufficient training on integrating these tools effectively into pedagogy, leaving teachers underprepared to exploit the benefits of digital learning environments. Addressing this gap is essential for ensuring that preschool teachers are technologically ready to engage digital-native learners.

Professional development is also a recurring theme in the literature, with scholars underscoring the importance of continuous and sustainable learning opportunities for preschool teachers. Garcia and Rosak-Szyrocka (2025) note that fragmented and short-term training often fails to address long-term teacher needs, while Wright and Baker (2025) highlight that resilience, adaptability, and reflective practice must be nurtured through mentoring, peer collaboration, and institutional support. Without such systemic approaches, teachers may struggle with workload intensification, classroom management, and socio-emotional demands, which can limit their effectiveness in responding to real-world educational challenges.

In view of these issues, this article conducts a Systematic Literature Review (SLR) to synthesize existing research on the preparation of preschool teachers for real-world educational challenges. By reviewing and analyzing twelve recent studies published between 2020 and 2025, this review aims to identify key strengths, weaknesses, and gaps in teacher education and professional development. The insights generated are intended to inform policymakers, teacher education institutions, and early childhood practitioners in designing more effective and context-responsive strategies for preparing preschool teachers to meet the evolving demands of contemporary education.

METHODOLOGY

This study adopted a Systematic Literature Review (SLR) approach with the aim of identifying, evaluating, and synthesizing research related to the preparation of preschool teachers in facing real-world educational challenges. The main purpose of the review was to answer the research question: How are preschool teachers being prepared to meet the practical demands of contemporary education?

The search process was carried out using several online databases, including Scopus, Web of Science, ERIC, and Google Scholar, focusing on peer-reviewed journal articles, book chapters, and conference proceedings published between 2020 and 2025. To capture the relevant literature, combinations of keywords such as *"preschool teacher preparation," "early childhood teacher education," "teacher training and real-world challenges,"* and *"professional development in early childhood"* were employed.

To ensure relevance, specific inclusion and exclusion criteria were applied. The review included studies that examined preschool or early childhood teachers, discussed aspects of teacher preparation, training, or professional development, and highlighted real-world challenges such as digital integration, inclusive education, workload, or cultural diversity. Only studies published in English and available in full text were considered. Meanwhile, studies that did not focus on preschool teachers, emphasized solely on children's learning outcomes without linking them to teacher preparation, or consisted of opinion papers without empirical evidence were excluded. The review process followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework (Watajdid, 2021). The process began with the identification of potential studies through database searching, followed by the screening stage where duplicates and irrelevant studies were removed. Screening & PRISMA. Titles/abstracts were double-screened, followed by full-text checks against criteria. PRISMA counts were: identified = 1200, after screening duplicates = 185, full-text assessed = 30, included = 12. Data extraction. For each study we captured: author/year, country/setting, aim, design/sample, preparation modality (e.g., coursework, practicum, coaching, PLCs), focal challenge(s), key findings, and stated

gaps/limitations. Quality appraisal. We used JBI checklists (qualitative; cross-sectional) and MMAT (mixed-methods); for conceptual/theoretical chapters we applied an adapted rubric (clarity of argument, grounding in prior work, practical implications). Appraisal informed weighting during synthesis but no numeric scores are reported.

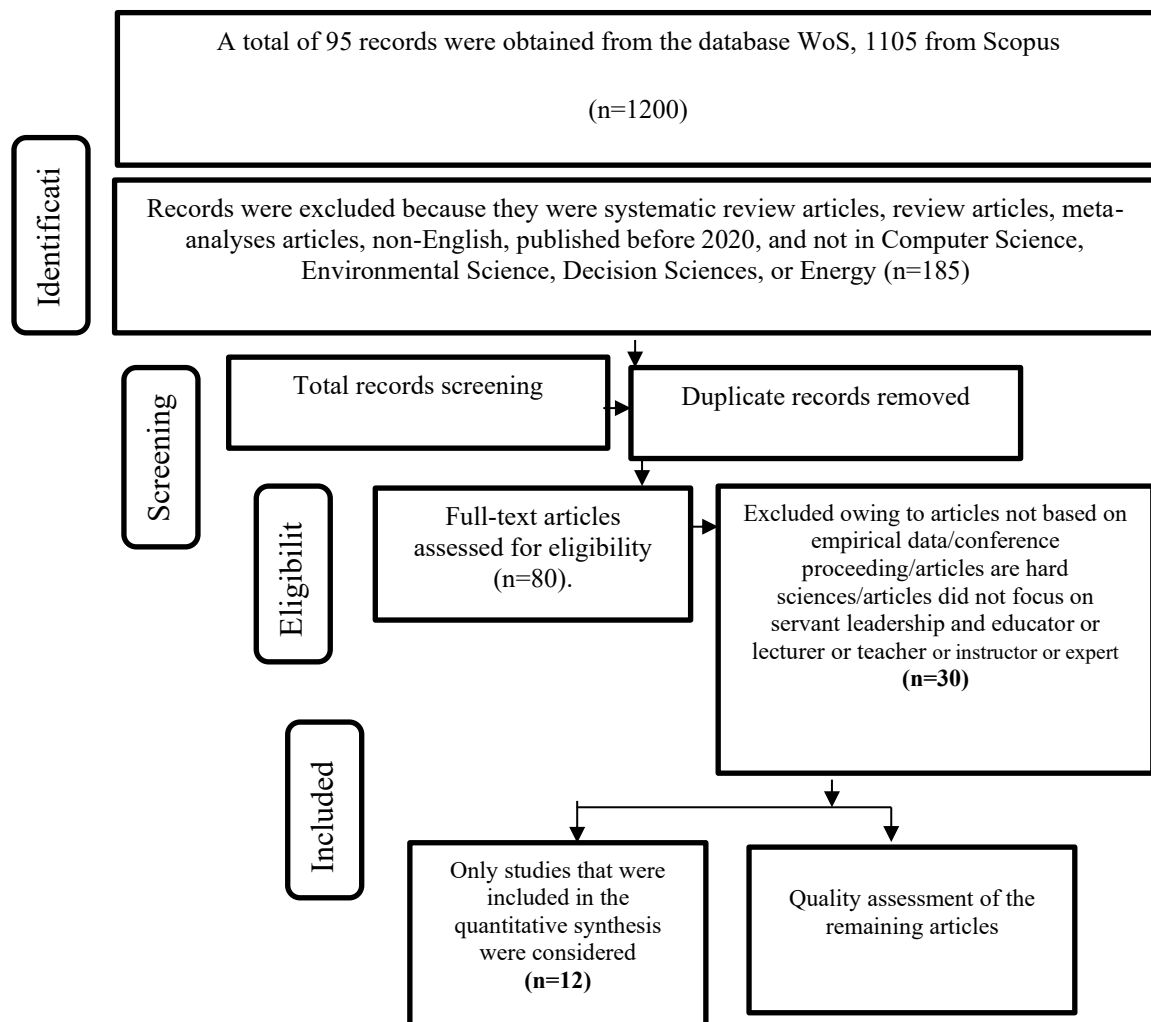


Figure 1. PRISMA flow chart of the source identification, screening, eligibility, and inclusion process. Source: Moher et al. (2009) and Hayrol Azril et al. (2018).

For data analysis, essential information such as the authors, year of publication, country of study, focus of research, findings, and research gaps was extracted from each article and organized systematically. The findings were then synthesized thematically and grouped under four key themes: (1) teacher knowledge and pedagogical preparation, (2) technological integration in preschool education, (3) cross-cultural and global perspectives, and (4) professional development and challenges. This structured and transparent process ensured that the review was comprehensive, replicable, and academically rigorous.

FINDING

A total of 120 records were identified through database searching for this systematic review on Preparation of Preschool Teachers for Real-World Educational Challenges. After removing duplicates and screening titles and abstracts against the predefined inclusion criteria (2020–2025 publications; early childhood/ preschool teacher population; focus on teacher preparation, training, or professional development linked to real-world classroom challenges; English language; peer-reviewed or scholarly sources), 85 records remained for assessment. Full texts of 30 studies were examined for eligibility in light of the review objectives. Following this appraisal, 12

studies were included in the final synthesis because they were most relevant and aligned with the thematic focus of the review, as summarized in Figure 1 (PRISMA Flow).

Rationale for inclusion criteria. Given the aims and scope, the review prioritized education and social-science literature indexed in major databases (Scopus, Web of Science, ERIC, and Google Scholar) to ensure coverage and quality. We included peer-reviewed journal articles and scholarly books/book chapters where they presented empirical or analytically rigorous contributions on preschool teacher preparation (e.g., coursework, practicum, mentoring/induction, PLCs, technology integration, inclusive/bilingual pedagogy) and directly addressed real-world challenges (classroom management, diversity/inclusion, multilingual contexts, digital pedagogy, workload/resilience). Studies that focused solely on children's outcomes with no link to teacher preparation, non-analytic opinion pieces, or works outside 2020–2025 were excluded. This strategy ensured a coherent evidence base while retaining sufficient breadth to capture contemporary developments in the field.

Teacher Knowledge & Pedagogical Preparation

Across studies, robust pedagogical content knowledge coupled with practice-based learning (micro-teaching, coached practicum, performance tasks) consistently improves perceived readiness for real classrooms. Approaches grounded in funds of knowledge/community engagement help pre-/in-service teachers connect curricula to children's lived realities, improving relevance, relationship-building, and differentiation. Programs that embed bilingual/inclusive pedagogies (e.g., UDL routines, language-aware strategies, formative assessment for diverse learners) report stronger confidence in mixed-ability, multilingual groups. Persistent gaps include limited opportunities for rehearsal with feedback, uneven mentoring quality, and assessment focused on coursework rather than classroom performance indicators (e.g., managing transitions, behaviour, and family communication).

Technology Integration (Digital Pedagogy)

Evidence shows rising expectations for digital literacy (from interactive media to AR/AI-supported tools). Effective preparation includes hands-on, design-oriented tasks (co-creating digital learning objects, evaluating age-appropriateness, privacy/ethics), iterative coaching, and classroom-embedded cycles (plan–teach–reflect). Barriers recur: time constraints in ITE curricula, access disparities, low self-efficacy with emerging tech, and age-appropriateness/ethics concerns (data privacy, over-stimulation). Where PD is **job**-embedded and ongoing, teachers report higher transfer to practice (e.g., using interactive stories, multimodal feedback, and digital documentation for parent dialogue). Still limited are rigorous measures of child-level outcomes tied to teacher tech training, and clear protocols for responsible AI use with young children.

Cross-Cultural & Global Perspectives

Studies emphasize cultural/linguistic responsiveness as core to “real-world” preparedness. Preparation that integrates multilingual/bilingual education, community partnerships, and reflective intercultural tasks (auto-ethnography, bias audits, family interviews) strengthens teachers' situational judgment and adaptive expertise. However, most interventions are short-cycle and context-bound; transfer to rural/low-resource settings are under-documented. There is also a scarcity of comparative or South-Global perspectives, limiting generalizability and policy relevance for diverse systems.

Professional Development & Support Systems

Short, one-off workshops rarely shift classroom practice. More promising are sustained models: mentoring/induction programs, Professional Learning Communities (PLCs), lesson study, and coaching loops tied to observation rubrics. These models foster resilience, reflective practice, and behaviour-management competence, while alleviating isolation. System-level supports time allocation, leadership backing, and access to resources are decisive. Recurrent pain points include workload intensification, emotional labour, and weak linkages between policy mandates and school-level support. Few studies report costs or scalability data.

Synthesis across the twelve included studies indicates that preschool teacher preparation for real-world educational challenges is shaped by four interlocking domains: practice-based pedagogical preparation, digital

pedagogy readiness, cultural and linguistic responsiveness, and sustained professional development ecosystems. Programs that embed structured rehearsal including micro-teaching, coached practicum, lesson study, and performance tasks anchored to clear rubrics to show the most consistent gains in classroom transfer. Teachers report higher confidence managing daily routines (transitions, behaviour support, family communication) when practice opportunities are paired with targeted feedback and mentoring rather than lecture-only coursework.

In the area of technology integration, the evidence points to a persistent gap between expectation and preparedness. Although early-years settings increasingly demand the use of interactive media and emerging tools (e.g., AR/AI-supported activities), teacher education curricula often provide limited, concept-heavy exposure. The most promising approach is job-embedded, iterative digital pedagogy built around create–teach–reflect cycles: teachers co-design digital materials, trial them in authentic classrooms, then engage in evidence-based reflection with a coach. This approach reliably improves digital self-efficacy and the quality of activity design. Nevertheless, concerns about age-appropriateness, privacy, and data ethics remain under-specified; explicit guardrails are needed to keep practices developmentally sound and safe.

With respect to cross-cultural and global competence, studies consistently show that preparation which mainstreams inclusive and bilingual pedagogy and leverages funds of knowledge—linking instruction to children’s family and community worlds—enhances teachers’ adaptive expertise. Such preparation strengthens differentiation, family engagement, and culturally responsive classroom climates. However, the evidence base is concentrated in urban, relatively well-resourced contexts; transferability to rural/low-resource settings is under-documented, limiting generalizability for policy.

Findings on professional development (PD) are unequivocal: one-off workshops rarely shift practice. Durable change is associated with layered PD ecosystems that combine induction/mentoring beyond graduation, Professional Learning Communities (PLCs), observation-coaching cycles tied to validated rubrics, and protected time with leadership backing. These arrangements build not only technical competence (e.g., formative assessment for diverse learners, behaviour support), but also resilience and reflective practice, which are critical for sustaining innovation under real classroom pressures.

Cross-cutting summary

1. What works: practice-based preparation with coached feedback; embedded, iterative digital pedagogy; community-linked and culturally responsive tasks; and sustained PD ecosystems (mentoring + PLCs + coaching).
2. Persistent gaps: a shortage of longitudinal/experimental evidence linking preparation to child outcomes; under-representation of rural/low-resource and Global South contexts; limited use of validated readiness/competency rubrics for classroom performance; and minimal reporting on costs, scalability, and policy–practice alignment.

Overall, the literature suggests that preparing preschool teachers for real-world demands requires a pivot from content coverage to practice-centred, context-responsive, and ethically grounded preparation, supported by ongoing, school-embedded professional learning.

The table below depicts the description of the research and the mapping of themes and sub-themes.

ID	Study focus (1-line)	Design	Primary Theme	Sub-themes
Article 1	Practice-based preparation for classroom routines	Qualitative case	Pedagogical Prep	Practice-based rehearsal; Classroom management
Article 2	Bilingual/inclusive strategies in diverse preschool	Mixed methods	Pedagogical Prep	Inclusive/bilingual pedagogy; Assessment for learning
Article 3	PLC + coaching to improve behavior support	Quasi-experimental	PD & Support	PLCs; Observation–coaching; Mentoring

Article 4	Digital storytelling & interactive media	Pre-post eval	Technology	Design–teach–reflect; Interactive media
Article 5	AR activities in early years & teacher readiness	Pilot study	Technology	AR/AI; Ethics & age appropriateness
Article 6	Funds of knowledge & family partnerships	Qualitative	Cross-Cultural	Funds of knowledge; Family–community
Article 7	Induction/mentoring for novice preschool teachers	Program eval	PD & Support	Mentoring/induction; Leadership support
Article 8	Formative assessment for multilingual learners	Mixed methods	Pedagogical Prep	Assessment for learning; Multilingual strategies
Article 9	Teacher digital competence framework adoption	Survey	Technology	Digital documentation; Design–teach–reflect
Article 10	Lesson study to strengthen differentiation	Action research	PD & Support	Lesson study; Observation–coaching
Article 11	Intercultural reflection tasks in ITE	Qualitative	Cross-Cultural	Intercultural reflection; Multilingual
Article 12	Job-embedded PD for tech integration	Pre-post + obs	Technology & PD	Job-embedded PD; Coaching; Ethics/privacy

DISCUSSION

This review set out to understand how preschool teachers are being prepared for real-world educational challenges and to identify the conditions under which preparation translates into classroom practice. Four recurring domains emerged—practice-based pedagogical preparation, digital pedagogy readiness, cultural and linguistic responsiveness, and sustained professional development (PD). Together, these domains point to a shift from content-centred programs to practice-centred, context-responsive, and ethically grounded preparation.

From coursework to coached performance

Across studies, the strongest and most consistent gains occurred when teacher preparation embedded structured rehearsal—micro-teaching, coached practicum, lesson study, and performance tasks anchored to rubrics. These designs improve classroom transfer: teachers become more confident with transitions, behaviour support, and family communication. By contrast, content-heavy coursework without coached application rarely moved the needle. The implication is straightforward: preparation should prioritize deliberate practice with feedback over coverage. Practicum quality (mentor capacity, observation protocols, and timely feedback) appears to be the crucial lever.

Digital pedagogy: iteration beats exposure

Findings reveal a persistent gap between expectations for technology integration and teacher readiness. Programs that treat digital tools as add-ons (one-off workshops or concept-only modules) produce modest gains. What works is job-embedded, iterative digital pedagogy—plan/design → teach → collect evidence → reflect with a coach. This cycle builds digital self-efficacy and improves activity design while surfacing age-appropriateness, privacy, and data-ethics issues that matter in early childhood. The literature also highlights access/time constraints; hence, digital preparation needs school-level supports (devices, scheduling) and explicit guardrails to keep practices developmentally sound.

Cultural and linguistic responsiveness as a readiness multiplier

In multilingual, diverse settings, preparation that mainstreams inclusive/bilingual pedagogy and leverages funds of knowledge enhances adaptive expertise. Teachers who learn to connect instruction with children’s family and community worlds differentiate more effectively and engage families better. Yet, evidence is concentrated in

urban, well-resourced contexts, with limited visibility into rural/low-resource settings. This threatens equity and generalizability. Future designs should extend community-linked preparation models to under-resourced contexts and test transferability across settings.

PD ecosystems, not events

The review is unequivocal that one-off workshops do not change practice. Durable change comes from layered PD ecosystems: induction/mentoring, PLCs or lesson study, and observation-coaching cycles tied to validated rubrics—backed by leadership and protected time. These conditions build resilience and reflective practice alongside technical skill. However, reporting on costs, staffing models, and scalability is thin. Without these, policy uptake stalls. Programs should incorporate implementation and economic evaluation to inform system-level decisions.

Strengths and limitations of the evidence

This synthesis spans diverse designs and geographies, offering a broad view of what works. Nevertheless, several limitations temper interpretation: (a) relatively few longitudinal or experimental studies link teacher preparation to child outcomes; (b) under-representation of Global South and rural/low-resource contexts; (c) variable use of validated readiness/competency rubrics; and (d) incomplete reporting on implementation logistics (costs, fidelity, dosage). These gaps suggest the field remains heavy on promising practice and light on causal and economic evidence.

Implications for policy and program design

1. Re-engineer curricula around coached practice. Make structured rehearsal and performance assessment the spine of initial teacher education and induction.
2. Institutionalize iterative digital pedagogy. Require create–teach–reflect cycles with explicit ethics/privacy guidance and resource commitments (time, devices, support).
3. Center cultural/linguistic responsiveness. Embed community-linked tasks and bilingual strategies; evaluate transfer to low-resource environments.
4. Build PD ecosystems. Fund multi-semester mentoring + PLCs + coaching with observation rubrics; measure teacher performance and child outcomes.
5. Report costs and scalability. Pair effectiveness studies with implementation economics to guide policy adoption.

Directions for future research

Priorities include (i) longitudinal designs tracking teacher readiness to child learning and well-being, (ii) pragmatic trials that compare PD models at scale, (iii) validated readiness rubrics capturing real-classroom competencies (behaviour support, family partnership, differentiation), and (iv) equity-focused studies in rural/low-resource and Global South contexts with attention to infrastructural constraints.

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