



Mapping the Path to Quality Early Childhood Education: Trends in Teacher Development in Indonesia

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ABSTRACT

Penelitian ini bertujuan untuk memetakan tren pengembangan kompetensi guru Pendidikan Anak Usia Dini (PAUD) di Indonesia dalam rentang tahun 2020 hingga 2023 melalui pendekatan Systematic Literature Review terhadap 51 artikel ilmiah terakreditasi nasional. Hasil penelitian menunjukkan adanya pergeseran fokus pengembangan guru dari keterampilan pedagogis dasar menuju penguasaan teknologi digital, serta adopsi model pedagogi inovatif yang sejalan dengan implementasi Kurikulum Merdeka. Selain itu, ditemukan ketimpangan geografis yang signifikan, di mana sebagian besar inisiatif terkonsentrasi di wilayah barat dan tengah Indonesia, sementara wilayah timur masih mengalami keterbatasan akses terhadap pelatihan profesional. Temuan ini menekankan pentingnya pemerataan program pengembangan guru PAUD demi mewujudkan pendidikan anak usia dini yang berkualitas dan inklusif sesuai dengan Tujuan Pembangunan Berkelanjutan (SDG) 4. Penelitian ini memberikan kontribusi signifikan terhadap perumusan kebijakan berbasis bukti dan strategi penguatan kapasitas guru PAUD di Indonesia.

This study aims to map the trends in early childhood education (ECE) teacher development in Indonesia from 2020 to 2023 through a Systematic Literature Review of 51 nationally accredited academic articles. The findings reveal a clear shift in focus from basic pedagogical skills to digital literacy and the adoption of innovative pedagogical models aligned with the implementation of the Kurikulum Merdeka (Independent Curriculum). Moreover, the study identifies a significant geographic disparity, with most initiatives concentrated in the western and central regions of Indonesia, while eastern regions remain underserved in terms of professional development access. These findings underscore the urgent need to ensure equitable access to teacher training programs to realize inclusive and high-quality early childhood education in line with Sustainable Development Goal 4 (SDG 4). This research makes a meaningful contribution to evidence-based policymaking and strategic planning for strengthening the capacity of Indonesia's ECE teaching workforce.

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1. Introduction

The global commitment to fostering inclusive and equitable quality education is a cornerstone of the 2030 Agenda for Sustainable Development, prominently articulated in Sustainable Development Goal 4 (SDG 4) (United Nations, 2015). This goal is not merely

an educational objective but is recognized as a fundamental driver for sustainable development, impacting poverty reduction, gender equality, and social mobility worldwide. For a populous and dynamic nation like Indonesia, achieving quality education is a national strategic priority, essential for building a competitive and resilient human capital base prepared for future global challenges (OECD & ADB, 2015). The Indonesian government has consistently affirmed its commitment to this agenda, recognizing that strategic investment in its people, starting from the earliest years, is paramount to leveraging its demographic dividend. Consequently, understanding the mechanisms and initiatives that contribute to educational quality at all levels is of utmost importance for national planning and policy, ensuring that no one is left behind in the country's journey toward long-term prosperity.

Within the broader educational spectrum, the foundational importance of early childhood education (ECE) is unequivocally established. In the Indonesian context, this critical sector is formally known as Pendidikan Anak Usia Dini (PAUD). International research powerfully demonstrates that high-quality ECE programs yield significant long-term returns, including improved cognitive abilities, better health outcomes, and greater future economic productivity, a concept substantiated by extensive evidence (Heckman, 2006). This recognition is formally enshrined in SDG Target 4.2, which calls for ensuring universal access to "quality early childhood development, care and pre-primary education" (United Nations, 2015). This emphasis on "quality" highlights the consensus among global education bodies that the learning experience must be stimulating, safe, and developmentally appropriate to be effective (NAEYC, 2020; UNESCO, 2022). Therefore, the policy focus has rightly shifted from merely expanding access to rigorously ensuring that the services provided meet high-quality standards.

This conversation about ECE quality inevitably leads to the competence of its educators, who are the central pillar of the system. It is widely accepted that teachers are the most critical in-school factor influencing child development and learning outcomes, shaping the daily experiences that form a child's disposition towards learning (Darling-Hammond, 2000). Their professional knowledge, pedagogical skill, and ability to foster a nurturing environment are what truly define the quality of ECE. Indeed, a teacher's competency in areas such as child psychology, curriculum design, and classroom management directly translates into richer, more effective learning opportunities. Acknowledging this, SDG Target 4.c explicitly aims to "substantially increase the supply of qualified teachers" through robust training and continuous professional development (United Nations, 2015). In the rapidly expanding ECE sector in Indonesia, driven by both government policy and growing public awareness, efforts to improve teacher competency are therefore a direct and vital implementation of this critical global target.

While numerous initiatives to enhance the competence of ECE teachers are undertaken across Indonesia by various actors, these efforts are often undertaken at a local level and documented in disparate studies, each providing valuable but fragmented insights into specific interventions (Atmojo et al., 2022; Aulina et al., 2022; Rukmini et al., 2022). What is currently lacking in the existing literature is a comprehensive, synthesized overview that maps the landscape of these initiatives on a broader scale. This absence of a "big picture" view makes it difficult to assess collective national progress or inform evidence-based policy for future teacher development. Therefore, this paper aims to address this gap by mapping the path to quality early childhood education through a systematic review and analysis of trends in PAUD teacher development in Indonesia, based on 51 journal articles published between 2020 and 2023.

By synthesizing these 51 empirical studies, this research provides a unique and comprehensive map of recent grassroots teacher development efforts in Indonesia. The

findings offer a data-driven snapshot that is highly valuable for several key stakeholders within the education ecosystem. For policymakers and government agencies, this analysis highlights dominant programmatic trends and, critically, reveals significant geographic disparities that need addressing to ensure equitable progress towards SDG 4. For higher education institutions, whose community service programs are a major force in this landscape, this study can inform the strategic direction of future initiatives to maximize their impact. Ultimately, this paper contributes to a more informed, evidence-based discourse on how to effectively invest in and support Indonesia's ECE teacher workforce, the very foundation of the nation's future human capital.

2. Method

This study employs a Systematic Literature Review methodology to identify, evaluate, and synthesize existing research on the development of Early Childhood Education (ECE) teacher competencies in Indonesia. The data corpus for this review consists of 51 peer-reviewed journal articles published between January 2020 and December 2023. This timeframe was specifically chosen to capture contemporary trends, including responses to the COVID-19 pandemic and the introduction of the Kurikulum Merdeka. The articles were gathered based on their direct relevance to professional development initiatives for ECE teachers, sourced from prominent national academic databases such as Google Scholar and SINTA, using keywords including "peningkatan kompetensi guru PAUD," "pelatihan guru TK," and "pengembangan profesionalisme guru."

The analysis was conducted through a structured, thematic approach. Initially, a Synthesis Matrix was developed to systematically extract and categorize key information from each of the 51 articles. The primary variables analyzed were: (1) the type of competency targeted, (2) the specific scope and focus of the development activity, (3) the scale of the initiative (micro, meso, macro), (4) the year of publication, and (5) the geographic location of the activity. Following data extraction, a descriptive analysis was performed to identify frequencies and distributions, while a thematic analysis was used to map significant patterns and temporal trends. This dual-analytical process allows for a comprehensive mapping of the landscape and a deeper understanding of the dynamics of ECE teacher development in Indonesia.

3. Results and Discussion

3.1. Thematic Focus

The analysis of 51 journal articles reveals that professional development initiatives for Indonesian ECE teachers predominantly target a combination of pedagogical and professional competencies, reflecting a responsive and evolving approach to the sector's needs. This focus suggests a strategic prioritization of skills directly related to classroom practice, which are often the most measurable and address the most immediate needs of educators. These efforts cover a wide spectrum of topics, indicating a responsive and evolving approach to professional development in the sector. The initiatives range from strengthening foundational, hands-on skills in creative arts and subject-specific content to embracing complex digital tools and advanced pedagogical frameworks. This wide range demonstrates a multifaceted strategy aimed at equipping educators with a robust toolkit to meet both timeless developmental needs and the demands of modern education. The thematic landscape can be broadly categorized into three key areas: creative and subject-specific media development; a significant surge in digital competencies; and the progressive adoption of innovative pedagogical models. This trajectory shows a clear movement from traditional skills toward more complex, technology-integrated, and policy-aligned professional development.

A substantial number of programs focused on empowering teachers to create their own tangible and engaging learning media, reflecting a strong grounding in constructivist, play-based pedagogical principles. Several initiatives trained educators to produce specific, interactive physical media, such as three-dimensional pop-up books (Hakim et al., 2023) and educational cloth books (Astuti et al., 2023). A recurring focus was on creating general Educational Game Equipment (Alat Permainan Edukatif or APE) from simple, low-cost, or recycled materials, a strategy particularly highlighted in workshops aiming to promote teacher resourcefulness and accessibility (Astriani & Alfahnum, 2020; Hidayat et al., 2021). This approach not only addresses the practical reality of resource limitations in many ECE settings but also aligns with pedagogical theories emphasizing hands-on, child-centered learning. Beyond general media, a subset of programs targeted subject-specific creative competencies to enrich the classroom experience, including workshops on creative dance (Pratiwi et al., 2020; Wulandari et al., 2020) and the development of original English-language songs for language acquisition (Noviyanti, 2020). Collectively, these initiatives demonstrate a strong commitment to empowering teachers as creators of educational content, fostering holistic child development through creative expression.

The most dominant theme observed, particularly from 2021 onwards, is the massive push toward enhancing teachers' digital competencies, clearly accelerated by the shift to remote learning environments during the COVID-19 pandemic. This surge represents the largest and fastest re-skilling effort documented in the dataset. The scope of this ICT training was extensive, covering content creation tools like Canva and Microsoft PowerPoint (Juanita et al., 2022; Pratiwi et al., 2022; Suliswaningsih et al., 2023), video production using smartphone editors (Bakhri et al., 2021; Renaningtias et al., 2022; Setyonugroho et al., 2021), and online delivery platforms like Google Meet and Zoom (Astriawati et al., 2021; Nadeak et al., 2022). Furthermore, training addressed comprehensive e-learning ecosystems, including Google Classroom and other Learning Management Systems (LMS) (Jamaluddin et al., 2021; Sarbaini et al., 2023). While this rapid upskilling was essential for ensuring educational continuity, it also raises critical questions about its depth. The predominant focus appears to be on technical proficiency—how to use the tools—rather than on digital pedagogy, or the more complex skill of how to design effective and developmentally appropriate learning experiences with these tools.

Beyond the acquisition of specific tools, the data also reveals a clear trajectory toward the adoption of more complex and integrated pedagogical models, signifying a maturation of professional development efforts. This trend marks a critical shift from reactive tool-based training to proactive, deeper pedagogical innovation. Several programs were dedicated to implementing advanced frameworks like STEAM (Pramudiyani & Indratno, 2021) and inquiry-based approaches like Project-Based Learning (PjBL) (Aufa & Zaratzar, 2023). The data also shows the use of structured, collaborative improvement models like Lesson Study (Marwan et al., 2023) and clinical supervision (Islamiati, 2023) to enhance teaching practice from within the school. Significantly, a number of recent initiatives focused explicitly on preparing teachers for the implementation of Indonesia's new national curriculum, the Kurikulum Merdeka (Librianty et al., 2021; Sudaryanto et al., 2023; Utami et al., 2023). This trend culminated in the adoption of sophisticated theoretical frameworks like TPACK, which aims to seamlessly integrate technology, pedagogy, and content knowledge (Hasjiandito et al., 2023; Sanusi et al., 2023). While this indicates a positive evolution, it also warrants critical inquiry into whether short-term training formats are sufficient to ensure deep, sustainable implementation of these complex models in the classroom.

3.2. Temporal Trends (2020-2023)

A temporal analysis of the articles published between 2020 and 2023 reveals a clear evolutionary trajectory in the focus of ECE teacher development, driven by major external

events and policy shifts. This period was not static but was characterized by a dynamic shift in priorities, beginning with foundational creative competencies, moving into an urgent phase of digital upskilling, and finally transitioning to a more proactive alignment with curriculum reform. This progression demonstrates the remarkable adaptability of the ECE professional development sector in responding to both unforeseen crises and forward-looking policy changes. The literature from this period effectively provides a timeline of a sector undergoing unprecedented disruption and transformation.

The articles from 2020 largely reflect pre-pandemic priorities, with a strong emphasis on strengthening holistic, embodied, and creative pedagogical practices best suited for face-to-face interaction. These initiatives often centered on the arts and social development, including training in creative dance (Pratiwi et al., 2020; Wulandari et al., 2020), the composition of English songs (Noviyanti, 2020), and parenting education to improve the school-home connection (Andriati et al., 2020). This focus on hands-on media creation and social-emotional skills can be seen as the "business as usual" for quality ECE. The abrupt pivot away from these priorities in the subsequent year suggests that the pandemic may have temporarily deprioritized these essential, arts-based methods in favor of more urgent technological needs.

A dramatic and decisive shift occurred in 2021, with the literature from this year overwhelmingly dominated by initiatives designed to address the challenges of emergency remote teaching. Responding to the COVID-19 pandemic, professional development programs rapidly pivoted to equip ECE teachers with essential digital skills for what can be described as "pedagogical triage"—ensuring the continuity of learning above all else. This is evident in the surge of training for video creation (Setyonugroho et al., 2021), using Google Suite for education (Astriawati et al., 2021), and implementing various ICT tools (Bakhri et al., 2021). While necessary, this reactive phase raises questions about the long-term pedagogical quality of such emergency training. It was during this period of disruption, however, that the first seeds of major policy reform also began to appear in the literature, with workshops introducing the principles of "Merdeka Bermain" (Freedom to Play) (Librianty et al., 2021).

Entering 2022 and 2023, the trend evolved from reactive crisis management to proactive, strategic adaptation, reflecting a new synthesis of skills. The focus was no longer just on substituting in-person activities with digital tools, but on integrating technology more meaningfully and aligning practice with new national policy. The implementation of the Kurikulum Merdeka became a central driver for professional development during this time (Sudaryanto et al., 2023; Utami et al., 2023). This policy alignment was accompanied by a move towards deeper pedagogical frameworks such as Project-Based Learning (Aufa & Zaratzar, 2023), Lesson Study (Marwan et al., 2023), and the integrated TPACK model (Hasjiandito et al., 2023). This final phase does not represent a return to the pre-2020 status quo, but rather an attempt to build a more resilient and forward-looking pedagogy that incorporates the digital skills acquired during the pandemic into a more sophisticated, policy-aligned educational practice.

3.3. Geographic Distribution and Equity Gap

The professional development initiatives documented in the reviewed articles are spread across a wide range of locations, reflecting what appears, on the surface, to be a national scope of activity. In total, the studies cover activities in 17 distinct provinces, from Aceh in the west to East Nusa Tenggara in the east, including several national-level online programs (Novelti et al., 2023; Wasito et al., 2022; Yanuarti et al., 2022). This broad distribution initially suggests a widespread effort to improve ECE teacher competence throughout the country. However, this surface-level view masks a significant imbalance, as a deeper

analysis reveals a heavy concentration of activities in the western and central parts of Indonesia, raising critical questions about educational equity.

The vast majority of the documented initiatives are concentrated on the islands of Java and Sumatra. Provinces such as West Java, Central Java, and D.I. Yogyakarta appear frequently as locations for workshops, training, and research, indicating a robust ecosystem of professional development activities (e.g., Budiana et al., 2021; Rukmini et al., 2022; Setyonugroho et al., 2021). This regional density is likely influenced by a confluence of factors, including the higher concentration of major universities that lead these initiatives, greater population density, and more developed infrastructure which facilitates program organization. This creates a self-reinforcing "center of gravity" for educational innovation and development, leaving other regions with potentially fewer opportunities.

Conversely, this concentration highlights a significant geographic gap in the eastern part of the archipelago, a critical finding of this review. While the corpus includes valuable studies from Central Kalimantan (Syafwandi & Juairiyah, 2023), South and Southeast Sulawesi (Erdiyanti & Syukri, 2021; Hasmawaty & Muliati, 2023), and East Nusa Tenggara (Kale et al., 2022), these initiatives are exceptions that underscore the broader pattern of scarcity. Most critically, this systematic review of 51 recent articles found a complete absence of documented professional development initiatives in the provinces of Maluku and Papua. Framed within the 2030 Agenda, this disparity represents a serious equity gap. It directly challenges the SDG principle of "leaving no one behind" and suggests that ECE teachers in Eastern Indonesia face significant barriers to accessing the very programs designed to improve educational quality. This could perpetuate and even widen a quality divide across the nation, making it the most urgent policy-relevant challenge identified in this study.

4. Conclusion

This systematic review of 51 articles maps the recent landscape of ECE teacher development in Indonesia, revealing a dynamic sector adapting to both crisis and policy. The findings highlight a significant trend towards digitalization, initially as a pandemic response and later evolving into more sophisticated pedagogical applications aligned with the *Kurikulum Merdeka*. While these initiatives demonstrate a strong commitment to enhancing teacher quality, a stark geographic disparity persists, with efforts concentrated in western and central Indonesia and a critical gap in the eastern regions. Addressing this equity gap is paramount to ensuring that the path to quality early childhood education is accessible to all.

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