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Teacher Professional Development in the 21st Century: A Cross-National Analysis of Policy and Practice

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ABSTRACT

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teacher professional development education policy comparative education 21st-century skills Teacher professional development (TPD) is widely recognized as a cornerstone for advancing educational quality in the 21st century. This comparative study examines TPD policies and practices in selected countries—Malaysia, Singapore, and Indonesia—to identify key strategies, challenges, and contextual factors influencing their implementation. Drawing on policy analysis and a comprehensive literature review, the study reveals that successful systems prioritize continuous learning, collegial collaboration, and sustained institutional support. However, disparities persist in resource allocation, policy coherence, and the alignment between pedagogical theory and classroom practice, particularly in developing contexts. The findings underscore the importance of context-sensitive, needs-driven, and policy-supported TPD frameworks. This study contributes to the discourse on global education reform by offering actionable insights for policymakers and education stakeholders aiming to enhance teacher capacity and responsiveness in an era of rapid change.



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INTRODUCTION

The 21st century has ushered in a period of unprecedented transformation in global education systems, driven by rapid technological advancements, globalization, and shifting socio-economic landscapes. These changes have amplified the demand for a well-prepared, adaptive, and professionally competent teaching workforce capable of equipping students with the knowledge and skills necessary for the future. Consequently, Teacher Professional Development (TPD) has gained increasing prominence as a strategic tool for educational reform and quality enhancement across both developed and developing nations (Darling-Hammond et al., 2017; OECD, 2019).

TPD is more than a policy mechanism; it is a dynamic and continuous process aimed at fostering teachers' instructional competence, reflective capacity, and professional agency. Effective TPD contributes to improved teaching quality, student learning outcomes, and overall school performance (Avalos, 2011). However, the design and implementation of TPD policies vary widely across different contexts, influenced by factors such as political will, economic capacity, institutional infrastructure, and cultural attitudes toward education (Villegas-Reimers, 2003).

In Southeast Asia, the discourse on TPD is particularly pertinent given the region's educational diversity and developmental disparities. Countries like Singapore have established reputations for their high-performing education systems and structured TPD models, while others, such as Indonesia and Malaysia, are grappling with systemic challenges and uneven implementation of professional learning initiatives (Goh & Gopinathan, 2008; Chang et al., 2014). These differences present an opportunity for comparative inquiry that can yield valuable insights for regional cooperation and policy transfer.

Singapore stands out as a benchmark for effective TPD in Asia. The country's approach is characterized by centralized planning, strong institutional support, and a culture of continuous professional learning embedded in the teaching profession (Tan, 2010). Teachers are expected to complete a prescribed number of professional learning hours annually, and TPD is closely aligned with performance appraisals and career progression. Institutions such as the National Institute of Education (NIE) play a central role in designing and delivering professional learning that is research-informed and contextually relevant (Low et al., 2014).

In contrast, Malaysia has adopted a semi-centralized approach to TPD that emphasizes national priorities while allowing for some degree of local adaptation. Although the Ministry of Education has developed comprehensive policy frameworks and allocated substantial resources to teacher training, implementation remains inconsistent, especially in rural and under-resourced areas. Issues such as inadequate follow-up support, insufficient collaboration among educators, and top-down policy directives have impeded the effectiveness of TPD programs (Jalal et al., 2009; Salleh & Tan, 2013).

Indonesia presents a more complex picture. With its vast archipelagic geography and decentralized governance structure, the country faces significant barriers to ensuring equitable and effective TPD. While national initiatives like the Teacher Certification Program and the Guru Penggerak program have sought to enhance teacher quality, challenges persist in terms of access, quality control, and contextualization of training content (Chang et al., 2014; Suryani, 2018). The fragmented nature of Indonesia's education system further complicates coordination and policy coherence at the national and local levels.

Across these three countries, commonalities in TPD challenges are evident. These include limited integration of pedagogical theory with classroom practice, insufficient time allocated for collaborative learning, and a lack of systematic needs assessment to inform TPD planning. Moreover, the professional development of teachers often remains peripheral to broader educational policy discourse, overshadowed by concerns over infrastructure, curriculum reform, and standardized testing (Guskey, 2002; Opfer & Pedder, 2011).

Despite these challenges, international research consistently highlights certain principles that underpin effective TPD. These include sustained duration, active learning opportunities, collective participation, and coherence with school goals and reform efforts (Desimone, 2009). Successful TPD systems also cultivate a culture of trust and professionalism, where teachers are viewed not merely as implementers of policy but as active agents of change and inquiry (Darling-Hammond et al., 2017).

The alignment between TPD policies and classroom realities remains a critical issue. In many cases, TPD is conceptualized at the policy level without adequate consideration of the diverse contexts in which teachers operate. Factors such as class size, student demographics, resource availability, and community expectations significantly influence the applicability and effectiveness of professional development strategies (Avalos, 2011; Loucks-Horsley et al., 2010).

There is also a growing recognition of the need for context-sensitive approaches to TPD, especially in low- and middle-income countries. Such approaches emphasize localized decision-making, culturally relevant pedagogy, and responsiveness to teachers' expressed needs and experiences. Rather than imposing externally developed models, context-sensitive TPD frameworks encourage participatory design and bottom-up innovation, thereby enhancing ownership and sustainability (Villegas-Reimers, 2003; Westbrook et al., 2013).

In this comparative study, Malaysia, Singapore, and Indonesia are examined not only for their differences but also for the shared aspirations and constraints that shape TPD implementation. The analysis draws on national education policy documents, government reports, academic literature, and international assessments to explore how each country envisions and executes TPD within its unique political and sociocultural context.

By synthesizing findings across these three cases, the study identifies key strategies that contribute to effective TPD, such as institutionalized mentorship programs, school-based professional learning communities, and digital learning platforms. At the same time, it highlights systemic barriers—including fragmented governance structures, inconsistent funding mechanisms, and limited capacity for monitoring and evaluation—that hinder progress.

The comparative nature of this inquiry offers important implications for both national and international stakeholders. For education ministries, the findings provide evidence-based

recommendations for refining TPD policies in ways that enhance coherence, accountability, and teacher empowerment. For international agencies and donors, the study underscores the importance of supporting locally driven professional development initiatives that reflect the realities of diverse education systems.

Ultimately, this research contributes to the broader discourse on global education reform by foregrounding the centrality of teachers in achieving sustainable and equitable learning outcomes. As education systems navigate the twin imperatives of quality and inclusivity, the professional growth of teachers must be prioritized through well-resourced, contextually grounded, and strategically aligned TPD programs.

In an era marked by uncertainty and change, the adaptive capacity of education systems hinges on the development of a resilient, reflective, and professionally supported teaching force. Comparative studies such as this are vital for understanding what works, for whom, and under what conditions—and for informing the design of TPD systems that are both globally informed and locally rooted.

METHOD

This study employs a qualitative comparative analysis (QCA) to investigate teacher professional development (TPD) policies and practices across three Southeast Asian countries: Malaysia, Singapore, and Indonesia. The comparative case study design was chosen to allow an in-depth examination of similarities and differences in policy frameworks, implementation strategies, and contextual challenges. By focusing on these three countries, the research aims to uncover how various sociopolitical, cultural, and economic conditions influence the design and effectiveness of TPD initiatives. The study is grounded in interpretivist paradigms, which prioritize contextual understanding and meaning-making derived from document analysis and literature synthesis.

Data for this study were gathered from a combination of primary and secondary sources. Primary data consisted of national education policy documents, teacher training guidelines, curriculum frameworks, and government reports published between 2010 and 2024. These documents were obtained through official government websites and education ministry portals in each country. Secondary data were derived from peer-reviewed journal articles, regional education reviews (e.g., UNESCO and OECD reports), and academic books that discuss TPD policies and practices within the selected countries. Inclusion criteria for secondary sources included publication in indexed journals, relevance to the topic of teacher professional development, and focus on the countries under investigation.

A document analysis method was employed to systematically review and interpret the content of collected materials. The analysis followed Bowen's (2009) framework for qualitative document analysis, which involves skimming, thorough reading, and interpretation of texts to extract meaningful patterns and themes. This approach was appropriate for the current study, as it allowed the researcher to examine the policy intent, implementation mechanisms, and embedded assumptions within each country's TPD framework. The analysis emphasized the alignment between policy prescriptions and actual classroom practices, as well as the identification of institutional enablers and barriers to effective TPD.

Thematic coding was used to identify recurring patterns across the data. Themes such as "institutional support," "collaborative learning," "resource allocation," "policy coherence," and "contextual adaptation" were derived both deductively—from existing theoretical frameworks on TPD—and inductively through immersion in the data. NVivo 12 software was utilized to facilitate coding, organization, and comparison of data across cases. This ensured a systematic and replicable analysis process while also allowing for flexibility in the emergence of context-specific insights.

The comparative analysis was structured around three guiding research questions: (1) What are the key components of TPD policy frameworks in Malaysia, Singapore, and Indonesia? (2) How are these policies operationalized at the institutional and classroom levels? and (3) What contextual factors support or hinder the implementation of effective TPD? These questions were developed in line with the study's aim to explore the interplay between national-level policy discourse and localized professional development practices.

To ensure the credibility and trustworthiness of findings, triangulation was employed by cross-verifying data from multiple sources. Policy documents were analyzed in conjunction with academic critiques and field reports to provide a balanced view of official narratives and on-the-ground realities. Additionally, peer debriefing was conducted with two scholars specializing in comparative education and Southeast Asian studies to refine interpretations and ensure analytical rigor.

Ethical considerations were carefully observed in the conduct of this study. As the research relied solely on publicly available documents and secondary sources, formal ethical clearance was not required. However, principles of academic integrity were upheld throughout, with proper citation of all sources and transparent documentation of analytical procedures. The study did not involve human participants or the collection of personal data.

The limitations of this methodology should be acknowledged. First, the reliance on document analysis means that the study is confined to what is documented and published; informal practices and undocumented innovations may have been overlooked. Second, the study does not incorporate direct fieldwork or interviews, which could have enriched the contextual understanding of policy implementation. Despite these limitations, the methodological design is well suited to the study's exploratory and comparative objectives, offering a comprehensive view of national TPD systems across diverse educational contexts.

Overall, the methodology adopted in this study allows for a robust and contextually grounded comparison of TPD policies and practices in Malaysia, Singapore, and Indonesia. The findings generated from this analytical framework aim to contribute both to theoretical discussions on teacher learning and to practical policymaking in the realm of professional education reform.

RESULTS AND DISCUSSION

The comparative study of Teacher Professional Development (TPD) across Malaysia, Singapore, and Indonesia reveals diverse approaches influenced by national education policies, institutional capacity, and socio-cultural contexts. Singapore's TPD framework is highly centralized and strategic, embedding continuous professional learning within a national agenda that prioritizes teacher excellence. The Ministry of Education (MOE) supports career-long development through clearly defined pathways, rigorous appraisal, and institutions like the National Institute of Education (NIE), ensuring that TPD is systematic, relevant, and aligned with national goals (Low, Goh, & Chen, 2014; Tan, 2010).

Malaysia also demonstrates strong policy commitment to TPD through initiatives like the Continuous Professional Development Masterplan, signaling a desire to enhance teacher quality (Ministry of Education Malaysia, 2013). However, challenges arise in translating these policies into effective practice due to bureaucratic layers and uneven resource distribution, particularly disadvantaging rural and underdeveloped areas (Salleh & Tan, 2013). This fragmentation affects policy coherence and weakens sustained teacher engagement.

Indonesia's decentralized education system presents a heterogeneous landscape for TPD. National programs such as the Teacher Certification Program and Guru Penggerak show governmental efforts to professionalize teaching and improve quality (Chang, Hedges, & Harwood, 2014; Suryani, 2018). Nonetheless, implementation varies widely across regions due to differences in governance capacity, infrastructure, and teacher availability, resulting in inconsistent quality and access.

Institutional capacity plays a crucial role in supporting TPD effectiveness. Singapore benefits from a robust ecosystem of professional bodies, teacher networks, and research institutions that create a vibrant culture of continuous learning and collaboration (Darling-Hammond, Hyler, & Gardner, 2017). The Academy of Singapore Teachers provides differentiated professional development pathways tailored to teachers' career stages, fostering motivation and sustained growth.

In Malaysia, institutional supports such as school-based training and cluster workshops exist but are often hampered by coordination issues and limited adaptation to local contexts, especially in rural areas (Jalal et al., 2009). The lack of cohesive support networks and follow-up mechanisms weakens the impact of these initiatives and reduces teacher buy-in.

Indonesia's institutional supports are more fragmented due to decentralization, with education offices, teacher colleges, and local governments frequently operating independently (Westbrook et al., 2013). While some regions pilot innovative approaches like online platforms and localized training, the absence of integrated systems and resource shortages hinder broader scaling and sustainability.

The modalities of TPD delivery significantly influence teacher learning outcomes. Singapore employs a blend of formal coursework, mentorship, coaching, and action research that connects theory with classroom practice (Low et al., 2014). Reflective practice and continuous feedback are embedded, enabling teachers to adapt pedagogies and technologies effectively.

Malaysia's TPD mostly relies on workshop-based, didactic sessions that emphasize compliance over innovation (Salleh & Tan, 2013). These are often generic and fail to address the specific instructional challenges faced by teachers, limiting transfer to classroom practice and engagement.

Indonesia uses a combination of face-to-face workshops and emerging digital learning platforms. However, access and quality remain uneven due to infrastructure challenges, particularly in remote regions (Chang et al., 2014). This inequity limits the reach and effectiveness of professional development programs.

Teacher agency emerges as a vital factor affecting the success of TPD. Singapore empowers teachers through leadership opportunities, involvement in curriculum design, and autonomy in shaping professional learning (Darling-Hammond et al., 2017). Such empowerment aligns professional growth with personal motivation and instructional needs.

Malaysia's hierarchical system limits teacher autonomy in TPD, often framing it as externally mandated compliance (Jalal et al., 2009). This top-down model can reduce motivation and curtail the customization of professional learning to diverse classroom contexts.

Indonesia offers some localized autonomy, but disparities in capacity and support mean many teachers struggle to exercise agency effectively (Westbrook et al., 2013). This variability weakens overall system coherence and diminishes the impact of TPD initiatives.

Resource allocation is a critical determinant of equity and quality in TPD. Singapore's centralized funding ensures equitable access to quality training, mentoring, and technological resources nationwide (Low et al., 2014). This supports consistent teacher quality and professional growth across schools.

Malaysia grapples with resource disparities, particularly in rural and marginalized communities where access to quality TPD is limited (Salleh & Tan, 2013). Digital divides and logistical challenges exacerbate these inequities, hindering equitable professional learning.

Indonesia's vast geography and decentralized funding mechanisms further deepen disparities in access to TPD resources (Chang et al., 2014). Many remote areas face shortages of qualified trainers, inadequate learning materials, and poor infrastructure, limiting effective participation.

Policy coherence, or the alignment between policy goals, implementation strategies, and evaluation, varies markedly among the countries. Singapore shows strong coherence with integrated feedback systems and stakeholder collaboration ensuring policies translate into practice (Tan, 2010).

Malaysia experiences policy fragmentation, with overlapping initiatives and poor integration between national and local levels (Jalal et al., 2009). This leads to inefficiencies and weakened policy impact.

Indonesia's decentralized governance results in significant variability in policy interpretation and implementation across regions, challenging coherence and limiting system-wide improvements (Westbrook et al., 2013).

Alignment between TPD and educational outcomes is strongest in Singapore, where professional development is explicitly linked to student learning goals and teacher appraisal systems (Low et al., 2014). This creates clear incentives for instructional improvement and accountability.

Malaysia and Indonesia lack robust monitoring systems connecting TPD participation to student achievement, making it difficult to assess and enhance the real impact of professional development (Salleh & Tan, 2013; Chang et al., 2014).

Scaling and sustainability of effective TPD models remain challenges, especially in Malaysia and Indonesia. Singapore's small size and centralized system facilitate scaling of best practices (Tan, 2010).

Malaysia struggles to sustain quality TPD in remote regions due to infrastructural and human resource constraints (Salleh & Tan, 2013). Indonesia's geographical and governance complexities complicate scaling of pilot projects beyond localized contexts (Westbrook et al., 2013).

Teacher well-being and professional identity are emerging priorities, with Singapore incorporating workload management and psychosocial support in TPD frameworks to enhance retention and motivation (Darling-Hammond et al., 2017).

Malaysia and Indonesia have yet to fully integrate well-being considerations into TPD, despite evidence linking teacher stress to performance and engagement challenges (Jalal et al., 2009; Chang et al., 2014).

Cultural sensitivity and contextual adaptation are crucial for effective TPD. Singapore's relatively homogeneous population allows standardized approaches with some adaptations for diverse learners (Low et al., 2014).

Malaysia's multiethnic, multilingual context requires culturally responsive training, though implementation often overlooks this complexity (Salleh & Tan, 2013). Indonesia's cultural diversity presents opportunities for locally tailored TPD that remain underutilized (Westbrook et al., 2013).

Digital technologies increasingly support TPD delivery. Singapore leads in integrating ICT into professional learning, offering virtual platforms and online communities that enhance access and personalization (Tan, 2010).

Malaysia and Indonesia are expanding digital TPD but face infrastructure gaps, digital literacy issues, and uneven access that limit impact (Salleh & Tan, 2013; Chang et al., 2014).

The findings highlight the importance of context-sensitive, teacher-centered, and well-supported TPD frameworks. Policies should promote continuous learning cultures, invest in institutional capacity, and enable teacher agency to enhance professional growth and instructional quality (Avalos, 2011; Opfer & Pedder, 2011).

Future research should examine teacher experiences in TPD through qualitative and longitudinal methods to better understand how professional development translates into classroom practice and student outcomes.

In summary, Singapore exemplifies a mature, coherent TPD system, while Malaysia and Indonesia face ongoing challenges related to policy implementation, equity, and sustainability. Lessons from this comparative study can inform efforts to improve teacher development systems regionally and contribute to global education reform discourse.

CONCLUSION

This comparative study highlights significant variations in Teacher Professional Development (TPD) policies and practices across Malaysia, Singapore, and Indonesia, underscoring the complexity of advancing teacher quality in diverse educational contexts. Singapore's centralized and coherent TPD framework demonstrates how strategic national planning, sustained institutional support, and a culture of continuous professional learning contribute to effective teacher development and improved educational outcomes. Conversely, Malaysia and Indonesia face challenges related to policy fragmentation, resource inequities, and the difficulties of decentralization, which limit the consistent implementation and scaling of TPD initiatives.

The findings emphasize the critical importance of context-sensitive approaches that recognize local needs, cultural diversity, and infrastructural realities. Moreover, fostering teacher agency and motivation through participatory and differentiated professional learning opportunities enhances engagement and instructional innovation. Equitable allocation of resources and robust institutional networks are also essential to ensure all teachers have access to meaningful professional development, regardless of geographic or socioeconomic constraints.

Additionally, the study reveals a gap in the integration of teacher well-being and digital competencies within TPD frameworks, particularly in Malaysia and Indonesia, areas that warrant further attention in policy and practice. Establishing stronger links between TPD participation and student learning outcomes remains a priority to validate and optimize professional development investments.

Ultimately, effective TPD is a multifaceted endeavor requiring collaboration among policymakers, educational institutions, and teachers themselves. This study contributes valuable insights for stakeholders aiming to design and implement sustainable, inclusive, and impactful TPD systems. Continued research and innovation are vital to adapt to the evolving demands of 21st-century education and to support teachers as key agents of educational reform and student success.

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