

Professional Development and Training Programs for Elementary School Teachers in the Last Decade – A Systematic Literature Review

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Abstrak. Pengembangan profesional untuk guru sekolah dasar sangat penting untuk meningkatkan kualitas pendidikan dan hasil belajar siswa. Tinjauan literatur sistematis ini mensintesis temuan dari 15 studi (2019-2025) tentang program pelatihan guru, dengan fokus pada efektivitas, metodologi, dan tantangan mereka. Studi yang dianalisis, dari Indonesia, Pakistan, dan konteks internasional lainnya, menggunakan beragam metodologi termasuk desain kuasi-eksperimental, kualitatif, dan kuantitatif. Tinjauan tersebut menemukan bahwa pelatihan dalam jabatan umumnya memiliki dampak positif yang signifikan terhadap kompetensi guru, keterampilan pedagogis, dan implementasi kurikulum, dengan bukti peningkatan kinerja secara statistik. Namun, efektivitas dimoderasi oleh faktor kontekstual, sehingga diperlukan program yang sensitif terhadap konteks dan formatif. Tantangan kritis adalah keberlanjutan; tanpa dukungan berkelanjutan, manfaat pelatihan awal seringkali berkurang seiring waktu. Tata kelola dan struktur program, bersama dengan integrasi keterampilan digital dan pendidikan STEM, diidentifikasi sebagai area penting untuk pengembangan. Akibatnya, pengembangan profesional yang efektif harus berkembang melampaui sesi sekali jalan menuju inisiatif yang berkelanjutan, suportif, dan relevan dengan konteks. Program di masa depan harus menggabungkan pendampingan jangka panjang, mekanisme umpan balik, dan konten yang disesuaikan untuk memastikan peningkatan berkelanjutan dalam praktik pengajaran dan secara efektif mengatasi tantangan di kelas.

Kata kunci : Keberlanjutan pelatihan; Kompetensi guru; Pelatihan dalam jabatan; Pengembangan profesional guru, Sekolah dasar.

Abstract. Professional development for elementary teachers is vital for improving education quality and student outcomes. This systematic literature review synthesizes findings from 15 studies (2019-2025) on teacher training programs, focusing on their effectiveness, methodologies, and challenges. The analyzed studies, from Indonesia, Pakistan, and other international contexts, employed diverse methodologies including quasi-experimental, qualitative, and quantitative designs. The review finds that in-service training generally has a significant positive impact on teacher competency, pedagogical skills, and curriculum implementation, with evidence of statistically improved performance. However, effectiveness is moderated by contextual factors, necessitating programs that are context-sensitive and formative. A critical challenge is sustainability; without ongoing support, initial training benefits often diminish over time. The governance and structure of programs, alongside the integration of digital skills and STEM education, are identified as pivotal areas for development. Consequently, effective professional development must evolve beyond one-off sessions towards sustained, supportive, and contextually relevant initiatives. Future programs should incorporate long-term mentoring, feedback mechanisms, and tailored content to ensure lasting improvements in teaching practices and effectively address classroom challenges.

Keywords : Elementary school; In-service training; Teacher competency; Teacher professional development; Training sustainability.

INTRODUCTION

Professional development and training programs have become a cornerstone of educational reform efforts worldwide. Despite substantial investment, many teachers report insufficient preparation to meet evolving curricular demands and diverse student needs, leading to persistent gaps in instructional quality and student achievement (Dacholfany et al., 2024). Over the last decade (2015-2025), rapid technological advancements and changing educational policies have reshaped the landscape of teacher learning, underscoring the need for systematic approaches to designing and evaluating professional development initiatives (Amemasor et al., 2025).

Despite widespread implementation of professional development programs, evidence on their sustained impact at the elementary level remains fragmented. Teachers often participate in isolated workshops with limited follow-up, resulting in minimal transfer to classroom practice and negligible gains in student outcomes (Dacholfany et al., 2024). Moreover, many programs lack alignment with teachers' contextual needs and theoretical underpinnings, which undermines their effectiveness and scalability (Qudsiyah et al., 2023).

Recent systematic review reveal key characteristics of effective professional development: collaborative learning communities, ongoing mentoring, hands-on training, and institutional support (Amemasor et al., 2025). Technology-enabled professional development, particularly during and after the COVID-19 pandemic, has shown promise in enhancing teacher engagement and fostering self-efficacy in digital instruction. Likewise, meta-analyses indicate that differentiated training methods, reflection on practice, lesson study, inquiry-based learning, and flipped classroom models, yield varying impacts on teacher knowledge, attitudes, and classroom management skills (Alsina et al., 2025).

A systematic synthesis of personal development programs for elementary teachers from 2015 to 2025 will (1) Identify evidence-based design principles, (2) Reveal gaps in program implementation and evaluation, and (3) inform policymakers and practitioners on creating sustainable. Context-responsive training models. Addressing these aims is critical for ensuring that professional development investments translate into meaningful improvements in teaching quality and students achievements.

REVIEW OF LITERATURE

Professional development for elementary school teachers is a systematic effort designed to strengthen teachers' pedagogical, content, and professional competencies in order to improve the quality of teaching and student learning outcomes. In recent decades, various models and strategies have been systematically researched to identify best practices in the implementation of elementary school teacher training programs.

The theory of professional development program effectiveness emphasizes that the most impactful interventions combine four key components: providing new insights into best practices, motivating change, developing specific teaching techniques, and ongoing field-based coaching. Sims et al. (2025), in a meta-analysis involving 104 randomized controlled trials, found that the combination of these four elements significantly improved the quality of teacher instruction and students' academic scores. The findings indicate that the success of professional development is not only measured by its duration or frequency, but also by the depth of content and ongoing support provided after the initial training.

The TPACK (Technological Pedagogical Content Knowledge) model highlights the importance of integrating content, pedagogical, and technological knowledge within a teacher training framework. (Boz, 2023) demonstrates that the application of TPACK in STEM integration training provides teachers with direct experience that strengthens their readiness to design interactive technology-based learning.

Additionally, the formation of Professional Learning Communities (PLCs) has proven effective in enhancing collective reflection and collaboration among teachers. (Risa et al., 2024) stated that professional development (PD) programs designed with a collaborative structure allow teachers to share teaching materials, discuss classroom challenges, and jointly design pedagogical innovations. This form of support fosters a culture of continuous learning, encouraging teachers to continuously improve their practices.

Focusing on formative assessment was also a key highlight in PD, where training emphasizing formative assessment techniques proved more effective than general training. Sims et al. (2025) noted that teachers trained in formative assessment showed increased implementation of continuous feedback in the teaching and learning process.

In the context of sustainability, institutional support—from both the government and school management—forms an important foundation. A PD program designed to meet teachers' needs, complete with a regular schedule and adequate resources, increases teacher motivation and engagement (Risa et al., 2024).

Overall, empirical evidence from 2020 to 2025 indicates that effective primary school teacher professional development programs are structured, evidence-based, and sustainable. The combination of TPACK theory, coaching approaches, formative assessment, and community-based support forms a comprehensive framework for improving teaching quality and student learning outcomes.

RESEARCH METHODOLOGY

This study uses the Systematic Literature Review (SLR) method to identify, evaluate, and synthesize the latest empirical findings on Professional Development and Training Program for elementary school teachers. The review process is carried out systematically through several main stages to ensure completeness, accuracy, and replicability. The guiding question posed was: “What are the main findings and characteristics of professional development programs and training for elementary school teachers reported in the empirical literature over the past ten years?”.

Literature searches were conducted electronically on the Google Scholar and ERIC scientific databases, supplemented by manual searches of accredited Indonesian education journals to ensure comprehensive coverage. The data selection and extraction process was carried out in stages, as summarized in the PRISMA flow chart on FIGURE 1 below.

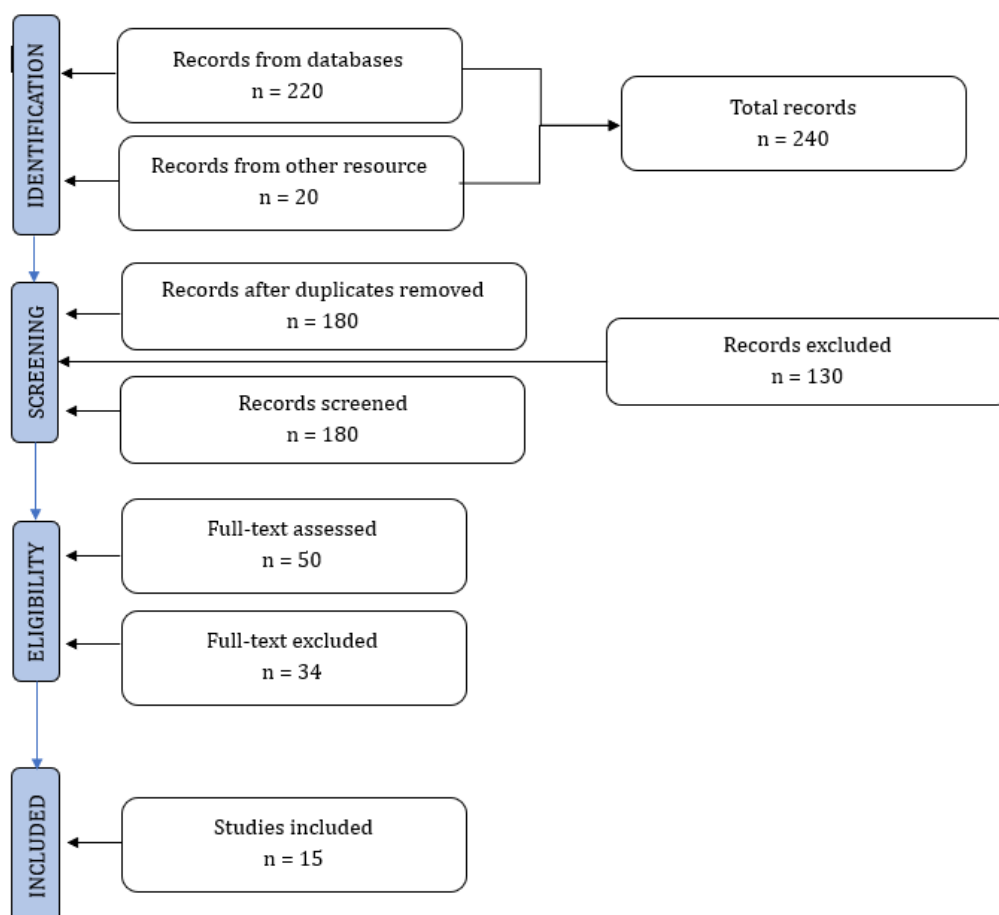


FIGURE 1. PRISMA MODE

FINDINGS AND DISCUSSION

An analysis of 15 articles that met the inclusion criteria revealed various findings regarding Professional Development and Training Programs for Elementary School Teachers. To provide a comprehensive overview, the main findings from the analyzed studies are presented in **Table 1** below.

TABLE 1. Summary of findings from analyzed articles on professional development for elementary school teachers

No	Title	Years	Type of Study	Focus	Sample/place	Findings
1.	Effect of In-Service Training on Elementary School Teachers' Professional Development (Raza et al., 2022)	2022	Quasi-experimental	In-service Training Impact	65 elementary teachers (Pakistan)	Significant improvement in teaching performance post-ITSP training ($t=15.970$, $p<0.001$)
2.	Professional Development of Elementary School Teachers: The Influence of In-Service Training (Younas et al., 2025)	2025	Qualitative Research	In-service Training	Elementary teachers (Pakistan)	COT framework needs refinement to be more context-sensitive and formative
3.	Professional Development for Indonesian Elementary School Teachers: Increased Competency and Sustainable Teacher Professional Development (Rasmaditala et al., 2024)	2024	Research Study	Teacher Competency	Elementary teachers	PD directly impacts students facing learning challenges
4.	Contextualized Montessori Teacher Training: A Learning Impact Evaluation (Kusumawardani & Rusman, 2025)	2025	Quasi-experimental	Montessori Training	20 early childhood teachers (Indonesia)	Significant improvement in knowledge post-training (paired t-test)
5.	In-service Training Governance for Elementary School Teachers (Arwildayanto et al., 2023)	2023	Research Study	Training Governance	Elementary teachers	Explores governance of in-service training types and techniques
6.	Evaluasi Efektivitas Program Pendidikan Profesional bagi Guru (Siregar, 2024)	2024	Quantitative Survey	Professional Education Program	100 elementary teachers (Indonesia)	Improved pedagogical, professional, social, and personal competencies
7.	Pengaruh Pelatihan Guru Terhadap Implementasi Kurikulum Merdeka Belajar SD (Karelu et al., 2025)	2025	Quantitative Correlational	Teacher Training Impact	7 teachers (Indonesia)	Training significantly influences curriculum implementation ($R^2=84.3\%$, $p=0.004$)
8.	Efektivitas Program Pelatihan Profesional Guru SD Dalam Meningkatkan	2024	Quasi-experimental	Professional Training	Elementary teachers	Significant improvement in teaching skills compared to control group

	Keterampilan Mengajar (Manjakani, 2024)					
9.	Professional Elementary Teachers in the Digital Era: A Systematic Literature Review (Ibda et al., 2023)	2023	Systematic Review	Digital Professionalism Era	31 articles (2010-2021)	Scopus Identified themes: professional development, pedagogical content knowledge, competence
10.	When Effective Teacher Training Falls Short in the Classroom (Bellue et al., 2024)	2024	Experimental Study	Training Program Effectiveness	Primary teachers (France)	Short-term effectiveness (+10% SD) but effects vanish without ongoing support
11.	Systematic Review and Meta-Analysis of Teacher Interventions for Externalizing Behaviors (Aldabbagh et al., 2024)	2022	Meta-analysis	Teacher Support Interventions	22 RCTs, 861 teachers, 1841 children	Significant improvements in teacher-child closeness and classroom management
12.	Teacher Professional Development for STEM Integration in Elementary/ Primary Schools: A Systematic Review (Boz, 2023)	2023	Systematic Review	STEM Integration Training	Empirical studies on elementary STEM	Reviews training on for integrated STEM in elementary schools
13.	Impact of professional development programme on teachers' competencies in assessment (Mak, 2019)	2019	Qualitative Study	Assessment Competencies	4 elementary teachers (Hong Kong)	Positive impact but requires long-term ongoing support
14.	Teachers and school administrators' experiences with professional development feedback: The classroom strategies assessment system implementation (Poulou et al., 2023)	2023	Mixed Methods	Classroom Assessment System	31 elementary teachers (Greece)	CSAS feedback helpful for instructional improvement
15.	Implementation and Evaluation of Teachers' Performance Supervision at Madrasah Aliyah (Islamic Senior High School) (Tambrin et al., 2021)	2021	Evaluation Study	Performance Supervision	Teachers in Madrasah (Indonesia)	Performance supervision implementation still ineffective due to resource limitations

Based on a synthesis of the findings listed in Table 1, several key theme can be identified:

1. Quantitative Evidence on Program Effectiveness
Most studies, especially those using quasi-experimental designs and quantitative surveys, provide strong evidence that professional development programs are statistically significant in improving various aspects of teacher competence, such as teaching performance, pedagogical skills, and curriculum implementation.
2. Sustainability and Contextualization Challenges

On the other hand, findings from Bellue et al. (2024); Mak (2019); Younas et al. (2025) provide a critical perspective. They highlight that the success of professional development programs is not only about short-term interventions. The effect of the program may fade without ongoing support, and program design needs to be contextual and sensitive to the specific needs and environment where teachers work in order for the impact to be sustainable.

3. Diversity of Training Focus and Scope

The table shows a wide variation in the content and focus of PPD. The programs studied are not limited to general pedagogical training, but also cover specific areas such as STEM integration (Boz, 2023), the Montessori method (Kusumawardani & Rusman, 2025), assessment competencies (Mak, 2019), and student behavior management (Aldabbagh et al., 2024). This demonstrates the complexity and specialization of teacher development needs.

4. Systemic Supporting Factors

Several articles remind us that the success of PPD also depends on systemic factors outside the training program itself. These include good governance (Arwildayanto et al., 2023), effective supervision and feedback systems (Poulou et al., 2023), and the availability of adequate resources (Tambrin et al., 2021). Without this systemic support, program implementation may not be optimal.

Thus, the data from the table and analytical narrative above illustrate that although the PPD program for elementary school teachers has been empirically proven to be effective, its long-term success is greatly influenced by factors such as sustainability, contextualization, content diversity, and strong systemic support.

This systematic review aims to synthesize the latest empirical evidence on Professional Development Programs (PDPs) and training for elementary school teachers. Findings from the 15 articles analyzed reveal a complex picture: PDPs consistently demonstrate effectiveness in improving teacher competence, but their long-term impact and sustainability are highly dependent on factors beyond the training content itself. This discussion will elaborate on these key findings and their implications for research and practice.

1. Confirmation and Reinforcement: The Mechanisms Behind Improving Teacher Competence

The findings of this review robustly affirm the established consensus that high-quality PDPs are a powerful lever for improving teacher competence (Darling-Hammond et al., 2017; Desimone, 2009). The strong quantitative evidence, such as that from Raza et al. (2022) showing significant pre-post-test gains, is crucial for persuading policymakers of PDPs' value. However, moving beyond mere confirmation, it is essential to ask how these programs achieve their impact.

The effectiveness can be attributed to programs that adhere to the core features of effective professional development outlined by Desimone (2009): content focus, active learning, coherence, duration, and collective participation. For instance, Boz (2023) STEM program likely succeeded because it was content-focused and provided opportunities for active learning through hands-on experiments. Similarly, Karelu et al. (2025) curriculum implementation training was effective because it ensured coherence with the teachers' existing curriculum goals.

While the quantitative data is compelling, I argue that we must look beyond p-values to the qualitative shifts in teacher understanding. The true success lies not just in improved test scores but in the development of teachers' pedagogical content knowledge (PCK), the unique blend of content and pedagogy that defines expert teaching (Shulman, 1987). A PDP that helps a teacher understand not only what a mathematical concept is, but why elementary students struggle with it and how to

represent it effectively, is one that builds genuine competence. Future studies should, therefore, include measures of PCK to capture this deeper dimension of teacher growth.

2. Beyond “One-Time” Training: Architecturing for Sustained Change

The most critical insight from this review is the stark limitation of the episodic, "one-shot" workshop model. The work of Bellue et al. (2024) and Mak (2019) serves as a powerful indictment of this outdated approach, demonstrating how knowledge and enthusiasm from a short-term training can quickly decay without sustained support.

Younas et al. (2025) call for "context-sensitive" training directly echoes this; teachers need to see the immediate relevance and application of new strategies in their specific classrooms. A generic lecture on classroom management is far less effective than a coaching session that helps a teacher manage their specific, challenging class of 30 first-graders.

The solution lies in viewing PDP not as an event but as a process. The positive effects of ongoing support, as seen in Poulou et al. (2023) use of the Classroom Strategy Assessment System (CSAS), align with Joyce and Showers (2002) seminal research on coaching. They found that without coaching, only a small fraction of teachers (around 5-10%) successfully transfer a new skill into their practice. Coaching, collaborative communities of practice, and continuous feedback are the essential scaffolding that supports implementation and adaptation.

The metaphor of a "hit-and-run" PDP is apt, but I would extend it. It's not just that the trainers "run away"; it's that they leave behind a new idea that is fragile and isolated. Without a supportive culture to nurture it, the idea is quickly overwhelmed by the entrenched habits and institutional pressures of the school. Sustainability, therefore, is not an add-on but must be designed into the program architecture from the outset. This means budgeting for follow-up sessions, training in-house instructional coaches, and creating structured time for teacher collaboration.

3. Diversity of Needs and the Era of Specialized, Differentiated PDP

The wide range of PDP foci, from Montessori and STEM to assessment and behavior management, reflects the increasingly complex and multifaceted role of the elementary school teacher. This diversity dismantles the myth of a universal, "one-size-fits-all" PD solution.

The success of specialized programs like Boz (2023) STEM integration and Aldabbagh et al. (2024) technology training indicates that teachers are seeking, and benefiting from, targeted learning that addresses specific classroom challenges or curricular initiatives. This mirrors the educational principle of differentiation that we advocate for students. Just as students have diverse learning needs, so do teachers, whose needs are shaped by factors such as grade level, subject specialty, student population (e.g., multilingual learners, students with disabilities), and years of experience.

This trend towards specialization presents a logistical and economic challenge but also a tremendous opportunity. The future of effective PDP may lie in modular or "menu-based" approaches where teachers, in consultation with instructional leaders, can select from a suite of evidence-based modules to create a personalized professional learning plan. This empowers teachers, increases buy-in, and ensures relevance. Furthermore, it acknowledges that a veteran teacher of 20 years likely needs a different kind of support than a novice in their first year, moving beyond a deficit model of PD to a growth-oriented one.

4. Systemic Challenges: Governance, Resources, and Feedback

A PDP does not exist in a vacuum. This review underscores that even the most brilliantly designed program can fail if the surrounding educational ecosystem is weak.

The challenges of poor governance (Arwildayanto et al., 2023) and resource-constrained supervision (Tambrin et al., 2021) are not mere footnotes; they are fundamental barriers to scalability and long-term impact.

Effective PDP requires a systems thinking approach Fullan (2007). This means aligning:

- a. Governance and Policy: Clear mandates and support from district and national authorities.
- b. Resources: Adequate funding for training materials, substitute teachers, and, crucially, time for professional learning.
- c. School Leadership: Principals who are not just managers but instructional leaders who can foster a culture of continuous improvement and protect teachers' time for collaboration.
- d. Feedback Mechanisms: Constructive, non-evaluative systems for feedback, like the CSAS used by (Poulou et al., 2023), which create a safe environment for risk-taking and growth.

The contrast between the studies by Poulou et al. (2023) and Tambrin et al. (2021) is particularly telling. It highlights that the issue is the quality of that supervision. Under-resourced, compliance-focused supervision is ineffective and often resented. In contrast, supervision that is supportive, expertise-based, and focused on providing actionable feedback becomes a powerful driver of change. Therefore, investing in the development of school leaders and instructional coaches is as important as investing in the training for teachers themselves. A chain is only as strong as its weakest link, and in the educational system, a PDP is often hampered by the weakest link in its support structure.

CONCLUSION

In conclusion, this review confirms that PDPs are a necessary but not sufficient condition for improving elementary education. The path forward requires a paradigm shift from viewing PD as a discrete intervention to understanding it as a continuous, contextualized, and systemically supported component of a teacher's professional life.

The practical implications of these findings are: Designing Sustainable PPDs, Contextualizing Content, and Strengthening Support Systems. For further research, additional studies are needed to explore the most cost-effective post-training support models, as well as action research that actively involves teachers in designing PPDs that are truly appropriate to their context and needs.

REFERENCES

- Aldabbagh, R., Glazebrook, C., Sayal, K., & Daley, D. (2024). Systematic Review and Meta-Analysis of the Effectiveness of Teacher Delivered Interventions for Externalizing Behaviors. *Journal of Behavioral Education*, 33(2), 233–274. <https://doi.org/10.1007/s10864-022-09491-4>
- Alsina, Á., Pincheira, N., & Franco, J. (2025). Mathematics teachers' professional development: A systematic review of training methods. *Eurasia Journal of Mathematics, Science and Technology Education*, 21(3). <https://doi.org/10.29333/ejmste/16041>
- Amemasor, S. K., Oppong, S. O., Ghansah, B., Benuwa, B. B., & Essel, D. D. (2025). A systematic review on the impact of teacher professional development on digital

- instructional integration and teaching practices. In *Frontiers in Education* (Vol. 10). Frontiers Media SA. <https://doi.org/10.3389/educ.2025.1541031>
- Arwildayanto, Wiyono, B. B., Rusdinal, Dewi, S., Ashokan, V., Wolok, E., & Said, H. (2023). In-service training governance, for elementary school teachers in Indonesia. *Cakrawala Pendidikan*, 42(2), 507–524. <https://doi.org/10.21831/cp.v42i2.56724>
- Bellue, S., Bouguen, A., Gurgand, M., Munier, V., & Tricot, A. (2024). When Effective Teacher Training Falls Short in the Classroom: Evidence from an Experiment in Primary Schools. *Economics of Education Review*, 103. <https://doi.org/https://doi.org/10.1016/j.econedurev.2024.102599>
- Boz, T. (2023). Teacher Professional Development for STEM Integration in Elementary/ Primary Schools: A Systematic Review. *International Electronic Journal of Elementary Education*, 15(5), 371–382. <https://doi.org/10.26822/iejee.2023.306>
- Dacholfany, M. I., Antoni, R., Sulissusiawan. A., Rijal, S., Utiahman, A., Alam, H. V., & Bagea, I. (2024). The Effectiveness of Teacher Professional Development Program on Classroom and Behaviour Management: A Systematic Review. *The Journal of Education and Society*, 2, 451–470. <https://doi.org/https://doi.org/10.15503/jecs2024.2.451.470>
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective Teacher Professional Development*.
- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3), 181–199. <https://doi.org/https://doi.org/10.3102/0013189X08331140>
- Fullan, M., & Sharratt, L. (2007). Sustaining leadership in complex times: An individual and system solution. *Developing Sustainable Leadership*.
- Risa, H., Nurjannah, & Madani, F. (2024). The Strategy of Continuous Professional Development Program for Elementary School Teachers on Pedagogical Competencies. *Jurnal Elementaria Edukasia*, 7(4), 3230–3243. <https://doi.org/10.31949/jee.v7i4.11131>
- Ibda, H., Syamsi, I., & Rukiyati, R. (2023). Professional elementary teachers in the digital era: A systematic literature review. *International Journal of Evaluation and Research in Education*, 12(1), 459–467. <https://doi.org/10.11591/ijere.v12i1.23565>
- Joyce, B. R., & Showers, B. (2002). *Student achievement through staff development*. Association for Supervision and Curriculum Development.
- Karelu, Yunus, M., & Nurdin. (2025). Pengaruh Pelatihan Guru Terhadap Implementasi Kurikulum Merdeka Belajar SD Inpres Jenebatu. *JURNAL EDUKASI*, 13(1), 111–121. <https://doi.org/https://doi.org/10.61672/judek.v13i1.2928>
- Kusumawardani, D. A., & Rusman. (2025). Curricula: Journal of Curriculum Development Contextualized Montessori teacher training: A learning impact evaluation. *Curricula: Journal of Curriculum Development*, 4(2), 1093–1106. <https://doi.org/10.17509/curricula.v4i2.86718>
- Mak, P. (2019). Impact of professional development programme on teachers' competencies in assessment. *Journal of Education for Teaching*, 45(4), 481–485. <https://doi.org/https://doi.org/10.1080/02607476.2019.1639266>

- Manjakani, A. (2024). Efektivitas Program Pelatihan Profesional Guru Sd Dalam Meningkatkan Keterampilan Mengajar. *Pedasud: Jurnal Ilmu Pendidikan Guru Sekolah Dasar Dan Usia Dini*, 1(1), 1–6. <https://doi.org/https://doi.org/10.70134/pedasud.v1i1.194>
- Poulou, M. S., Reddy, L. A., & Dudek, C. M. (2023). Teachers and school administrators' experiences with professional development feedback: The classroom strategies assessment system implementation. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1074278>
- Qudsiyah, B., Laila, F., Munir, B., Didik Suprianto, W., & Nurhayati. (2023). Hakikat Pendidikan Dan Manajemen Pendidikan Di Sekolah. *JMI: Jurnal Multidisiplin Indonesia*, 2(6), 1297–1303. <https://doi.org/https://doi.org/10.58344>
- Rasmaditala, Rachmadtullah, R., Prasetyo, T., Humaira, M. A., Sari, D. A., Samsudin, A., Nurtanto, M., Fitriyani, & ZamZam, R. (2024). Professional development for Indonesian elementary school teachers: Increased competency and sustainable teacher development programs. *F1000Research*, 13, 1375. <https://doi.org/10.12688/f1000research.156946.1>
- Raza, S., Kalsoom, S., Ghani, S., & Sarwar, N. (2022). Effect Of In-Service Training On Elementary School Teachers' Professional Development. *Pjree*, 19(4), 331–349.
- Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57(1), 1–23. <https://doi.org/https://doi.org/10.17763/haer.57.1.j463w79r56455411>
- Sims, S., Fletcher-Wood, H., O'Mara-Eves, A., Cottingham, S., Stansfield, C., Goodrich, J., Van Herwegen, J., & Anders, J. (2025). Effective Teacher Professional Development: New Theory and a Meta-Analytic Test. *Review of Educational Research*, 95(2), 213–254. <https://doi.org/10.3102/00346543231217480>
- Siregar, L. (2024). Evaluasi Efektivitas Program Pendidikan Profesional bagi Guru. *JURNAL EDUKATIF*, 2(2), 131–136. <https://ejournal.edutechjaya.com/index.php/edukatif>
- Tambrin, M., Wasliman, I., & Mudrikah, A. (2021). Implementation and Evaluation of Teachers' Performance Supervision at Madrasah Aliyah (Islamic Senior High School). *Journal of Educational Research and Evaluation*, 5, 645–655. <https://ejournal.undiksha.ac.id/index.php/JERE>
- Younas, Z., Ali, N., & Ullah, S. (2025). Professional development of elementary school teachers: The influence of in-service training. *Journal of Climate and Community Development*, 4(1), 28–38