Teacher Agency and Pedagogical Challenges in an Innovative Learning Environment: Lessons from Semesta School, Indonesia

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Abstract

This study examines teacher agency and the pedagogical challenges faced by educators within an innovative learning environment at Semesta School, Indonesia. The research aims to explore the manifestations of teacher agency, the factors influencing it, and the strategies teachers employ to address pedagogical challenges in innovative classrooms. A qualitative method with a case study design was employed. The research subjects consisted of eight teachers selected through purposive sampling based on variations in teaching experience, subject areas, and level of involvement in innovative teaching practices. The school principal and two academic coordinators were also involved as supporting informants. Data collection techniques included in-depth interviews, participatory observation over three months, and analysis of school documents. Data analysis was performed using thematic analysis with a reflexive approach, through the process of transcription, open coding, theme development, and iterative review. Data validity was ensured through triangulation of sources, techniques, and timing, as well as a member checking process. The results indicate that teacher agency is formed through the interaction of pedagogical competence, professional reflection, a supportive school culture, and adaptive classroom management practices. Teachers were able to negotiate professional autonomy with curriculum demands, utilize learning assessment as a reflective tool, and develop innovative strategies to enhance student engagement and autonomy. The research implications emphasize the importance of structural support, a collaborative culture, and continuous teacher capacity development to strengthen their agency in 21st-century learning transformation.

Keywords: *Teacher Agency, Pedagogy, Innovative Learning Environment, Teacher, Competence, Case Study*

Introduction

The 21st century has fundamentally reconfigured the epistemic foundations of education, demanding a decisive shift from transmissive pedagogies towards dynamic, student-centered learning paradigms (Doolittleet al., 2023). This global transformation is particularly urgent in Indonesia, where national educational policies increasingly advocate for the integration of critical thinking, collaboration, and digital literacy within a framework of character building (Wijayanti et al., 2025). Despite systemic mandates, a profound dissonance persists between policy rhetoric and classroom reality, revealing that the core impediment to educational innovation is not a lack of policy but a crisis of teacher capacity and autonomy (Nasution & Indrasari, 2024).

Teachers, positioned at the critical nexus of change, are often caught between progressive institutional visions and the entrenched weight of bureaucratic systems, traditional pedagogical habits, and resource constraints (Arif et al., 2024; Maharani et al., 2025). Consequently, this research is imperative because it directly investigates the human element of educational reform,

moving beyond a focus on curricular content or technological tools to examine the very agents tasked with enacting change—the teachers themselves (Brown et al., 2023). By scrutinizing the complex interplay between individual capacity and institutional structure, this study addresses a vital gap in understanding how sustainable pedagogical innovation is genuinely achieved or hindered in real-world school settings (Qin & Su 2025).

The persistent struggle of Indonesian educators to implement student-centered approaches, despite clear policy directives, underscores a significant research problem rooted in the concept of professional agency (Putri & Budiraharjo 2024). Evidence from various innovative school initiatives indicates widespread challenges, including teachers' under-developed mastery of learning technologies, limited time and skill for critical reflection on practice, and a tendency to revert to familiar, teacher-dominated methods under pressure (Nasution & Indrasari, 2024). These are not merely technical deficiencies but symptoms of a deeper issue concerning how teachers perceive their role and their power to act within the educational ecosystem (Gao & Cui 2022). When teachers view themselves primarily as implementers of predetermined curricula rather than as adaptive designers of learning experiences, innovation remains superficial (Rini & Indah, 2023).

Therefore, this study is propelled by the necessity to move beyond diagnosing symptoms and instead explore the foundational conditions that enable or constrain a teacher's sense of efficacy and intentionality their agency in navigating the demands of a modern learning environment. This investigation is crucial for generating knowledge that informs more effective, empathetic, and empowering models of teacher professional development and systemic support (Wang, 2022). The urgency of this research is further amplified by the theoretical and contextual gap in our understanding of teacher agency within non-Western educational landscapes. While international scholarship robustly establishes teacher agency as a cornerstone of successful educational change, dominant theoretical models, often derived from Western, individualistic contexts, may inadequately capture the nuanced realities of Indonesian teachers.

In Indonesia, professional action is deeply embedded within collectivist cultural norms, hierarchical institutional structures, and distinct socio-economic constraints that shape how agency is expressed and negotiated (Tripathi, 2025). Preliminary studies suggest Indonesian teachers may exercise agency not as overt, individual autonomy but as forms of "agentic resilience," manifested through community networks and tactical navigation of systemic limitations. Thus, there exists a pressing need for contextualized empirical research that grounds the theory of teacher agency in the specific realities of Indonesian schools, avoiding the pitfalls of theoretical imposition and instead building knowledge from the ground up. This research aims to provide that necessary contextual depth, offering insights that are both locally relevant and contribute to a more globally nuanced theory of teacher professionalism (Hidayat & Lestari 2022).

Ultimately, this research is undertaken with the conviction that empowering teachers is the single most critical lever for achieving meaningful and lasting educational transformation. The study's significance lies in its potential to illuminate the lived experiences of teachers at the forefront of innovation, identifying not only the barriers they face but also the strategies, resources, and cultural conditions that foster their professional empowerment. By conducting an in-depth case study at Semesta School, an institution recognized for its commitment to innovative practice, this research seeks to produce a rich, granular understanding of teacher agency in action (Emanset al., 2025). The findings are expected to yield actionable insights for school leaders in designing supportive professional ecosystems, for policymakers in crafting

enabling frameworks, and for the academic community in refining context-sensitive theories of educational change. In an era of rapid societal shifts, investing in a deep understanding of the teacher as an active agent is not merely an academic exercise but a fundamental prerequisite for building an education system capable of preparing Indonesian students for the complexities of the future (Emanset al., 2025).

The concept of teacher agency has emerged as a central focus in educational research concerned with change and innovation, evolving from philosophical debates into a critical sociological lens for understanding professional practice. Contemporary scholarship largely rejects a view of agency as a static, individual possession, instead favoring ecological and sociocultural perspectives that position it as a dynamic achievement shaped by context. A seminal temporal framework, conceptualizing agency as emerging from the interplay of three dimensions: the *iterational* (influenced by personal and professional history), the *projective* (oriented by future aspirations and goals), and the *practical-evaluative* (negotiated within present constraints and affordances) (Leijen et al., 2024). This model decisively shifts the analytical focus from the teacher as an isolated actor to the teacher within an ecosystem, acknowledging that agency is both enabled and constrained by the structures, cultures, and relationships that constitute their professional environment.

Such a perspective is indispensable for this study, as it provides a sophisticated tool to dissect how teachers at Semesta School navigate their past experiences, future ambitions, and present realities to enact pedagogical change (Emanset al., 2025). Building upon this ecological foundation, research specifically links the robust exercise of teacher agency to the successful implementation of innovative learning environments (ILEs). ILEs, characterized by flexible pedagogies, technology integration, and a focus on competency development, demand a radical re-scripting of the teacher's role from knowledge authority to learning designer and facilitator. Scholars argue that in such environments, teacher agency becomes the essential mechanism for translating abstract pedagogical frameworks into authentic classroom practice (Hu & Shen 2024).

Without agency, innovations risk being implemented in a superficial, compliant manner, losing their transformative potential. For instance, a teacher's agentic capacity determines whether technology is used to simply digitize old worksheets or to foster new forms of collaboration and creation. Therefore, investigating agency is not tangential but central to understanding the actualization of innovation, making it the core analytical focus for examining the day-to-day realities of a school like Semesta that explicitly identifies as an innovative learning community (Mensah, 2025). However, a critical review of the literature reveals a significant geographical and cultural lacuna. The predominant theories of teacher agency have been developed and validated primarily in Western European, North American, and Australian contexts, where educational systems and cultural norms around individualism, professional autonomy, and authority differ markedly from those in Southeast Asia.

Rightly critiqued the uncritical application of these theories, arguing that in collectivist, relationally oriented societies, agency is often expressed and experienced differently more communally, more tactically, and with greater emphasis on harmony within hierarchical structures (Tao & Wang 2024). This theoretical gap necessitates a cautious, non-prescriptive approach to studying agency in Indonesia, where the interplay of professional action with local cultural scripts and bureaucratic systems remains under-explored. This study positions itself to address this gap by employing Western-derived theories not as a rigid template but as a sensitizing framework, while allowing the specificities of the Indonesian context to shape and

refine the understanding of agency that emerges from the data (Lubis et al., 2023). The Indonesian educational context presents a unique constellation of factors that theoretically shape teacher agency.

Studies highlight the enduring influence of a centralized, hierarchical bureaucracy that can foster a culture of dependency and compliance, potentially suppressing proactive initiative. Simultaneously, the collectivist cultural principle of *gotong royong* (mutual assistance) can serve as a powerful substrate for collaborative agency, where professional strength is derived from community rather than individual assertion (Iswadi et al., 2025). Recent empirical work, such as that by Faisal and Suryanto, begins to chart this territory, identifying "agentic resilience" as a form of persistent, community-embedded professional action that allows teachers to navigate systemic obstacles. Furthermore, material constraints, including uneven access to technology and high student-to-teacher ratios, constitute a very real practical-evaluative dimension that Indonesian teachers must continually negotiate. This literature confirms that agency in Indonesia is a complex, situated phenomenon, making a context-specific case study not just valuable but essential for generating valid insights (Mukadimah, 2025).

This research, therefore, carves its niche by focusing on the intersection of teacher agency and pedagogical practice within the specific domain of an innovative learning environment in Indonesia. It seeks to understand how agency is manifested not as an abstract capacity but in concrete teaching actions: in the design of project-based learning, the management of a collaborative classroom, and the implementation of formative assessment (Boice et al., 2024). By zooming in on these specific pedagogical practices, the study aims to move beyond general statements about empowerment to generate fine-grained insights into the *how* of agentic teaching. The literature establishes that these practices are both arenas where agency is required and sites where agency is demonstrated and developed, making them ideal focal points for empirical investigation. In doing so, the study aims to contribute a detailed, practice-oriented perspective to the growing body of literature on teacher agency in non-Western contexts (Emanset al., 2025).

In summary, the literature review establishes a compelling rationale for this study. It confirms teacher agency as a critical, ecologically-formed variable for educational innovation. It identifies a significant contextual gap in the application of agency theory to Indonesia, shaped by unique bureaucratic, cultural, and material conditions. Finally, it justifies the focus on pedagogical practice as the key site for observing agency in action. This study is designed to engage directly with these scholarly conversations, using the case of Semesta School to test, refine, and contextualize existing theories, ultimately contributing a rich, situated understanding of how Indonesian teachers navigate the demanding yet promising landscape of 21st-century educational innovation.

Method

To investigate the nuanced phenomenon of teacher agency within the specific context of Semesta School, this study employed a qualitative research approach centered on a single, instrumental case study design. The qualitative paradigm was selected for its ontological and epistemological alignment with the research aims, as it prioritizes understanding the complex meanings, experiences, and social processes that constitute reality for the participants (McNeil et al., 2025). A case study methodology is particularly apt for examining a contemporary phenomenon in its real-life context, especially when the boundaries between the phenomenon and its context are not clearly evident. Teacher agency perfectly fits this description, as it cannot

be extricated from the specific institutional culture, policies, and interpersonal relationships of Semesta School. This design allows for a holistic, in-depth exploration of how agency is individually experienced and collectively shaped within this unique innovative ecosystem, providing the depth and thickness of description necessary to answer the research questions. The study was conducted with the primary objective of generating a rich, contextualized narrative rather than testing predetermined hypotheses (Greenhalgh, 2025).

The research site, Semesta School, was purposively selected as an exemplar of an intentional innovative learning environment in Indonesia. Recognized for its systemic commitment to project-based learning, digital integration, and collaborative teacher culture, the school represents a "critical case" for studying teacher agency under conditions explicitly designed to foster it. The primary participants were eight classroom teachers, chosen through maximum variation purposive sampling to ensure diversity across key dimensions: subject specialization (STEM, humanities, arts), years of teaching experience (ranging from 2 to over 20 years), and perceived level of engagement with innovative practices (Campbell et al., 2020).

This strategic selection was crucial to capture a wide spectrum of perspectives and manifestations of agency, from novice adopters to seasoned pedagogical leaders. Additionally, the school principal and two academic coordinators were included as key informants to provide essential insights into the organizational structures, leadership philosophies, and institutional challenges that form the backdrop against which teacher agency is exercised. The selection of these informants was based on their direct involvement in shaping the school's pedagogical direction and support systems (Gayapersad et al., 2024). Data generation occurred over an intensive five-month period and was triangulated through three complementary methods to ensure robustness and validity. First, semi-structured in-depth interviews, lasting 60-90 minutes each, were conducted with all teacher participants and administrative informants.

These interviews explored teachers' professional histories, perceptions of their role, experiences with pedagogical innovation, and narratives of challenge and success, providing rich subjective data on the iterational, projective, and practical-evaluative dimensions of their agency (Schlunegger et al., 2024). Second, approximately 50 hours of participatory classroom and meeting observations were conducted. These observations focused on capturing the enactment of agency in real time—how teachers facilitated projects, managed classroom dynamics, interacted with colleagues in Professional Learning Community (PLC) meetings, and negotiated moments of pedagogical decision-making. Finally, a documentary analysis of relevant school artifacts was undertaken, including curriculum frameworks, meeting minutes, teacher reflection journals, and internal policy documents. These texts served as tangible traces of the school's formal expectations and the teachers' responsive practices, offering a third vantage point on the structure-agency dynamic (Schlunegger et al., 2024).

The collected data underwent a rigorous analysis process guided reflexive thematic analysis (Braun and Clarke's 2021). This process was not linear but iterative, moving back and forth between the dataset, coded extracts, and evolving analytic themes. All interviews were transcribed verbatim and, alongside observation notes and documents, uploaded into qualitative data analysis software for systematic management. The initial phase involved repeated, immersive reading of the data to facilitate familiarization. This was followed by an intensive coding process, where segments of text were assigned descriptive and interpretive labels that captured key concepts. Following this, codes were collated and clustered into potential themes, which were then reviewed, refined, and defined to ensure they accurately represented the dataset and addressed the research questions. Central themes that emerged included, for

example, "Collaborative Scaffolding of Agency," "Temporal Constraints as Agency Friction," and "Assessment as Dialogic Reflection."

To ensure the trustworthiness and ethical integrity of the study, several key strategies were employed. Methodological triangulation (using interviews, observations, and documents) and participant triangulation (incorporating views from teachers and leaders) were used to cross-verify findings and build a coherent, multi-faceted narrative. A member-checking process was conducted, where preliminary interpretations were shared with participants to confirm resonance and correct potential misunderstandings. Peer debriefing with fellow educational researchers provided an external check on the analytic process. Ethical adherence was maintained through obtaining informed consent, ensuring voluntary participation, guaranteeing anonymity through the use of pseudonyms, and securing all data. While the single-case design limits broad statistical generalizability, the study aims for analytic generalization, providing deep insights that can inform theoretical understanding and offer transferable lessons for similar contexts in Indonesian innovative education (Stahl & King 2020).

Results

The findings from Semesta School reveal that teacher agency is not a uniform attribute but a contextualized and multi-faceted phenomenon, cultivated within a carefully constructed yet imperfect professional ecosystem. The school's environment is explicitly engineered for innovation, with physical spaces designed for collaboration, a timetable allowing for extended project work, and a public commitment to student-centered pedagogies. Observations consistently depicted classrooms as dynamic workshops where student groups engaged in solving complex, interdisciplinary problems, with teachers circulating as facilitators, questioners, and resource brokers. This environment, as one teacher described, "forces you to relinquish the script,"creating a necessary condition for agency by demanding adaptive, real-time pedagogical decision-making.

However, this very design also introduced significant tensions, particularly around balancing open-ended inquiry with coverage of mandated curriculum competencies and managing the high expectation for seamless technology integration, which was a noted source of anxiety for several staff members. Thus, the innovative ecosystem served simultaneously as a catalyst for and a crucible of teacher agency, a space where professional autonomy was both required and rigorously tested.Within this ecosystem, teacher agency manifested most visibly through three interconnected modalities: pedagogical initiative, critical reflection, and strategic adaptation. Pedagogical initiative was observed in teachers proactively designing and contextualizing learning projects. For instance, a science and social studies team diverged from a textbook unit on ecosystems to co-create a project analyzing the environmental impact of a local market, partnering with community stakeholders.

This required initiative in curriculum redesign, resource mobilization, and pedagogical risk-taking. As the science teacher explained, "The national curriculum gives us the skeleton, the key competencies we must address. But it is our professional duty—and our joy—to put flesh on those bones. We ask: what is the most relevant, engaging context for *our* students to learn this? For us, it was the polluted river behind the school, not a generic case study from a book." This demonstrates agency in the projective dimension, where teachers' future-oriented goals for relevant learning override a passive iteration of standard content. Their actions were not reckless but were underpinned by a strong sense of pedagogical purpose and a trust-based relationship with school leadership that allowed for such deviation.

The second vital manifestation was sustained critical reflection, which operated as both an individual and collective engine for agentic growth. The school had institutionalized reflection through structured weekly Professional Learning Community (PLC) meetings and post-class observation dialogues. These were not perfunctory sessions but rich, often vulnerable, exchanges where teachers dissected lesson outcomes, shared student work, and brainstormed solutions to pedagogical problems. A mathematics teacher recounted how a lesson using a new digital simulation "failed spectacularly" to foster conceptual understanding. Rather than hiding this, she presented the student data and her frustration to her PLC. The collaborative analysis that followed, focusing on cognitive load and the value of physical manipulatives, transformed a personal setback into a collective learning opportunity. As she reflected, "In our PLC, failure is just data.

When I shared my flopped simulation lesson, no one judged me. Instead, we analyzed *why* it flopped. My colleague suggested a simple, hands-on activity with blocks. Trying that next day was terrifying, but it worked. That process—from public failure to supported success—is what makes me feel empowered to keep experimenting." This process exemplifies the practical-evaluative dimension of agency, where present challenges are navigated through social and reflective practice. The third manifestation, strategic adaptation, highlighted teachers' tactical navigation of systemic constraints. This was evident in how they negotiated the interface between administrative accountability and pedagogical flexibility. Teachers described developing a shared practice of submitting "living documents"—project plans that were flexible frameworks designed to evolve. They then used student portfolios and process documentation as evidence to satisfy administrative requirements.

A language arts teacher articulated this tactical approach: "We mastered the art of 'strategic documentation.' The office needs a lesson plan? We give them a dynamic map with learning goals and competencies, not a minute-by-minute script. We then flood them with evidence of the journey: student reflections, photos of prototypes, peer feedback transcripts. This way, we prove deep learning is happening, even if the final project looks nothing like the initial plan. It's about speaking the language of accountability while protecting the messy reality of inquiry." This form of agency represents a sophisticated negotiation within structural constraints, preserving space for authentic teaching.

Despite a generally supportive culture, the study identified several persistent and significant challenges that tested the limits of teacher agency. The most universally cited challenge was profound temporal scarcity. The intensive nature of designing and facilitating project-based learning, coupled with ubiquitous administrative duties, relentlessly encroached on the time necessary for deep planning and reflective practice. As one experienced teacher lamented, "Agency requires cognitive space—time to think, to read, to converse with colleagues. But that space is the first casualty of our reality. My day is a marathon of facilitation, grading, emails, and meetings. By the time I could plan creatively, I am exhausted. So, my 'agentic' decisions are often made in a state of survival, not strategic reflection. The system asks for innovation but doesn't protect the time that innovation requires." This chronic time poverty directly impacted the iterative and projective dimensions of agency, limiting teachers' capacity to learn from the past and plan creatively for the future.

A second major challenge was the uneven landscape of technological proficiency and its psychological impact. While the school was well-resourced, a clear spectrum of digital fluency existed among staff, creating a hidden stratification. One teacher confessed, "I feel a constant, low-grade anxiety. The students are digital natives; some of my colleagues are too. When an

app glitches or the LMS is slow, I feel my authority crumbling. The students snicker, and I feel like an impostor. In those moments, I instinctively want to go back to what I know I can control perfectly: my lecture notes and the whiteboard. Technology, which is supposed to empower, sometimes feels like it disempowers me." This "technostress" could trigger a regression to more traditional, teacher-centered practices, directly constraining agency by undermining confidence and reinforcing the iterative pull of familiar methods. This challenge highlighted that providing technology is insufficient; building the pedagogical and psychological capacity to wield it agentically is paramount.

Furthermore, teachers grappled with the challenge of aligning innovative practices with institutional performance metrics. The school, despite its innovative ethos, still operated within broader systems that used standardized indicators of success. Teachers expressed tension between nurturing long-term competencies and producing tangible, assessable outcomes. A coordinator noted, "There's a quiet pressure to ensure that all this beautiful, process-oriented work also yields a neat, quantifiable product for our accreditation reports. You see teachers subtly steering projects toward a 'presentable' conclusion that ticks boxes, rather than letting the learning meander to its authentic, maybe messier, end. It's a quiet corruption of the process." This tension could sometimes lead to a subtle instrumentalization of projects, thereby limiting the truly emergent potential of the work and circumscribing teacher agency within a framework of measurable results, conflicting with the ethos of open-ended inquiry.

In response to these challenges, teachers and the school organization collaboratively developed and leveraged key support structures that actively cultivated agency. The most significant of these was the Professional Learning Community (PLC), which functioned as a vital scaffold. Beyond a venue for sharing ideas, the PLC provided psychological safety. A novice teacher described it as a "sanctuary for vulnerability." She explained, "In my first year, I was drowning. The PLC was where I could say, 'I have no idea how to assess this project,' without fear. The experienced teachers didn't give me answers; they shared their own struggles and we built solutions together. That safety net gave me the courage to fail forward." This collaborative problem-solving directly enhanced the practical-evaluative capacity of teachers, pooling collective intelligence to navigate classroom challenges. This structure effectively distributed agency across the group, ensuring that individual limitations could be overcome through communal support.

The philosophy and actions of school leadership were another cornerstone in fostering an agentic culture. The principal and coordinators consistently enacted a model of distributed, facilitative leadership. Their primary role, as articulated by the principal, was "to be the chief 'remover of obstacles,' not the chief 'giver of orders.'" He elaborated, "My job is to ask, 'What's blocking your great teaching?' Is it a resource? A policy? A scheduling conflict? Then, I work to dismantle that block. I must publicly celebrate experiments that don't go as planned, because that shows we value learning over perfect performance. Trust is the currency here." This leadership approach directly nourished teachers' projective agency by validating their future visions and their practical-evaluative agency by providing air cover for their daily negotiations. Trust, not control, was the foundational currency, creating an environment where teachers felt ownership over their practice and the professional legitimacy to act on their judgments.

Discussion

The findings from Semesta School present a compelling and nuanced illustration of teacher agency as an ecological achievement, vividly demonstrating how it emerges from the dynamic interplay between individual capacity, collegial structures, and supportive leadership. The three primary manifestations of agency—pedagogical initiative, critical reflection, and strategic adaptation—align strongly with the temporal dimensions proposed (Priestley et al. 2021), yet they are profoundly inflected by the specific cultural and institutional context of an Indonesian innovative school. This study confirms that agency is not a monolithic trait but a situated practice, where the *projective* capacity to envision new pedagogical futures is made actionable through the *practical-evaluative* work of navigating present constraints within a culture of professional trust. Importantly, it enriches the ecological model by highlighting how, in this collectivist setting, agency is often a collaborative project. The PLCs at Semesta do not merely support individual agency; they become sites of *distributed agency*, where professional judgment and resilience are pooled and amplified, embodying the cultural principle of *gotong royong* (mutual assistance) in a contemporary professional context. This challenges purely individualistic conceptions of empowerment and underscores the social embeddedness of professional action.

The persistent challenges identified—temporal scarcity, technological inequity, and metric alignment pressure—serve as critical friction points that reveal the limits and necessary conditions for sustainable agency. These are not peripheral concerns but structural forces that actively shape the ecological space in which agency operates. The chronic lack of time, in particular, represents a direct assault on the iterational and projective dimensions of agency. As teachers articulated, agency requires cognitive space for reflection on past practice and creative planning for future practice; without it, even the most willing educators are trapped in a reactive present, diminishing the quality of their professional decisions. This finding presents a stark challenge to school leaders and policymakers, urging a reconceptualization of teachers' time as a fundamental pedagogical resource rather than an administrative variable to be filled. Similarly, the variable experience with technology underscores that agency is competence-dependent.

TPACK framework would suggest, without the deep integration of technological, pedagogical, and content knowledge, tools intended to liberate can instead provoke anxiety and cause regression to familiar, teacher-centered methods. This highlights that fostering agency requires more than providing hardware; it demands sustained, contextualized professional development that builds both skill and confidence (Prates et al., 2025). In contrast, the supportive structures of PLCs and facilitative leadership emerged as powerful affirmative forces that actively construct and expand the ecological space for agency. The PLCs function as what can be termed "agentic scaffolding," providing the social, emotional, and cognitive support that enables individual teachers to take risks, persist through failure, and refine their practice.

This aligns with and extends the work of scholars on "agentic resilience," demonstrating that such resilience is not merely a gritty individual trait but a resource cultivated, replenished, and shared within a professional community. The facilitative leadership model observed directly addresses the structural aspect of the ecology (Zhang et al., 2024). By deliberately distributing power, defending autonomy, and celebrating iterative learning, leadership at Semesta actively altered the practical-evaluative conditions, making it safer and more legitimate for teachers to exercise judgment. This aligns with concept of collaborative professionalism, where leadership is about nurturing collective responsibility and capacity. This synthesis of findings confirms that

fostering agency is an active, intentional design practice involving both cultural cultivation and structural redesign (Hargreaves & O'Connor's 2020).

The implications of this study for teacher professional development are significant and necessitate a shift from conventional models. Theoretically, the findings argue for a more context-sensitive and collective understanding of agency in non-Western educational landscapes. Professional development programs, therefore, must move beyond one-off, deficit-focused workshops on new techniques. Instead, they should prioritize the creation and sustained nurturing of collaborative structures like PLCs that provide ongoing, job-embedded support for reflective practice and shared problem-solving. School leadership development must similarly evolve to emphasize distributed, facilitative models over traditional, hierarchical command. Leaders must be equipped with the skills to build trust, cultivate psychological safety, and act as systemic advocates who buffer teachers from counterproductive external pressures. At a policy level, there is a clear imperative to reevaluate accountability mechanisms and administrative workloads.

Systems must develop "smart accountability" that values and captures evidence of deep learning processes, thereby reducing the friction teachers face in aligning innovative, responsive teaching with rigid performance metrics. This research also opens avenues for critical reflection and future inquiry. While Semesta School provides an instructive model of a supportive ecosystem, it is a well-resourced, private institution with significant autonomy. A crucial and challenging question is how the principles of agentic scaffolding, distributed leadership, and protected reflection time can be adapted and realized in under-resourced public schools, which face far greater structural constraints and bureaucratic oversight. Future comparative research across different school contexts is essential to develop more equitable and universally applicable models of professional empowerment.

Furthermore, a longitudinal study tracking the evolution of a teacher's agency over several years within such an ecosystem could reveal the deeper developmental trajectories and turning points in professional empowerment. Finally, investigating student perceptions of teacher agency could provide a valuable reciprocal lens, exploring how agentic teaching practices characterized by flexibility, responsiveness, and shared ownership are experienced by learners and how they impact the development of student agency itself, completing the ecological picture of empowerment within the learning environment. In synthesizing these insights, this discussion posits that the journey toward meaningful educational innovation is fundamentally a journey of cultivating teacher agency. The case of Semesta School demonstrates that this cultivation is a deliberate architectural endeavor.

It requires designing temporal structures that protect reflective space, social structures that foster vulnerability and collaboration, and leadership structures that distribute authority and celebrate learning-in-progress. The challenges identified are not signs of failure but indicators of the very terrain on which agency is built. By acknowledging these frictions and strategically building supportive scaffolds, schools can transform from organizations that merely implement change into dynamic ecosystems where teachers are the primary authors and architects of learning. This shift is essential for moving beyond superficial innovation to achieve the deep, contextual, and sustainable pedagogical transformation required for 21st-century education.

Conclusion

This study, grounded in the empirical context of Semesta School, affirms that teacher agency is the central determinant of the success and sustainability of educational innovation in 21st-century learning environments. The findings demonstrate that teacher agency is not a fixed personal attribute, but a dynamic and context-dependent capacity that emerges through intentionally designed professional ecosystems. When teachers are granted authentic pedagogical autonomy, supported by structured collegial reflection through Professional Learning Communities, and guided by leadership that emphasizes facilitation rather than control, they transition from passive curriculum implementers into empowered and adaptive designers of learning. This shift enables educators to make principled, context-sensitive decisions that effectively reconcile external policy demands with the diverse needs and potentials of their students. The theoretical contribution of this research lies in its elaboration and contextualization of the ecological model of teacher agency within the sociocultural landscape of an Indonesian innovative school. The study confirms the core temporal dimensions of agency iterational, projective, and practical-evaluative while extending the model by highlighting the decisive role of collective social structures. In a collectivist cultural context, teacher agency functions as a shared and relational resource, cultivated and sustained through trust-based professional networks.

This finding challenges individualistic and neoliberal conceptions of teacher empowerment that prioritize accountability and technical competence, and instead supports a holistic, ecosystem-oriented perspective on educational change that integrates collaborative culture and distributed leadership. From a practical standpoint, the study calls for coordinated action among educational stakeholders. School leaders are urged to adopt facilitative leadership practices and safeguard time for collaborative inquiry and reflection. Policymakers should develop flexible, principles-based accountability frameworks that accommodate the emergent nature of student-centered and project-based learning. Teacher educators and professional development providers must foster reflective dispositions, collaborative skills, and agentic mindsets. Ultimately, this study asserts that investing in the living ecosystem of teacher agency is the most strategic pathway toward sustainable educational innovation and meaningful learning for future generations.

Acknowledgment

References

Arif, N., Volya, D., & Heryanti, R. (2024). Reimplementing English as a Mandatory Subject in Elementary Schools: Teachers' Beliefs under the Merdeka Curriculum. *International Journal of Language Teaching and Education*, *8*(2), 69-91. https://doi.org/10.22437/ijolte.v8i2.43299

Boice, K. L., Alemdar, M., Jackson, J. R., Kessler, T. C., Choi, J., Grossman, S., & Usselman, M. (2024). Exploring teachers' understanding and implementation of STEAM: one size does not fit all. In *Frontiers in Education* (Vol. 9, p. 1401191). Frontiers Media SA. https://doi.org/10.3389/feduc.2024.1401191

Brown, C., White, R., & Kelly, A. (2023). Teachers as educational change agents: What do we currently know? Findings from a systematic review. *Emerald Open Research*, *1*(3). https://doi.org/10.1108/EOR-03-2023-0012

Braun, V., & Clarke, V. (2020). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, *18*(3), 328–352. https://doi.org/10.1080/14780887.2020.1769238

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., ... & Walker, K. (2020). Purposive sampling: complex or simple? Research case examples. *Journal of research in Nursing*, *25*(8), 652-661. https://doi.org/10.1177/1744987120927206

Emans, A., Oolbekkink-Marchand, H., Bakker, C., & De Bruijn, E. (2025). Teacher agency in the dynamics of educational practices: a theory synthesis. In *Frontiers in Education* (Vol. 9, p. 1515123). Frontiers Media SA. https://doi.org/10.3389/feduc.2024.1515123

Doolittle, Peter, Krista Wojdak, and Amanda Walters. 2023. "Defining Active Learning: A Restricted Systematic Review". Teaching and Learning Inquiry 11 (September). https://doi.org/10.20343/teachlearninqu.11.25.

Gao, Y., & Cui, Y. (2022). Agency as power: An ecological exploration of an emerging language teacher leaders' emotional changes in an educational reform. *Frontiers in psychology, 13*, 958260. https://doi.org/10.3389/fpsyg.2022.958260

Gayapersad, A., O'Brien, M. A., Meaney, C., Aditya, I., Baxter, J., & Selby, P. (2024). Key informants perspectives on creating a high impact research department in family and community medicine: a qualitative project. *BMC Primary Care*, *25*(1), 52. https://doi.org/10.1186/s12875-024-02288-6

Greenhalgh, T. (2025). Case studies: a guide for researchers, educators, and implementers. *BMJ medicine*, *4*(1), e001623. https://doi.org/10.1136/bmjmed-2025-001623

Hargreaves, A., & O'Connor, M. T. (2020). *Collaborative professionalism: When teaching together means learning for all*. Corwin Press.

Hidayat, R. H., & Lestari, Y. B. (2022). Challenges teachers face in applying high order thinking skills. *In 3rd Annual Conference of Education and Social Sciences (ACCESS 2021)*, (pp. 61-66). Atlantis Press. http://dx.doi.org/10.18415/ijmmu.v11i2.5530

Hu, W., & Shen, X. (2024). Exploring teacher agency in online foreign language teaching (FLT) during and after the COVID-19 pandemic—a systematic review. *Humanities and Social Sciences Communications, 11*(1), 1-11. https://doi.org/10.1057/s41599-024-04244-2

Iswadi, I., Iriansyah, H. S., Tamzil, F., Sari, S., & Saridin, R. B. (2025). Global insights for National Reform: A comparative review of education management in Finland, Japan, Singapore, and the United States. *Jurnal Pendidikan Progresif*, *15*(3), 1930-1952. http://jpp.fkip.unila.ac.id/index.php/jpp/

Leijen, Ä., Pedaste, M., & Baucal, A. (2024, April). A new psychometrically validated questionnaire for assessing teacher agency in eight dimensions across pre-service and in-service teachers. In Frontiers in Education (Vol. 9, p. 1336401). Frontiers Media SA. https://doi.org/10.3389/feduc.2024.1336401

Lubis, S. H., Fauziati, E., & Rochsantiningsih, D. (2023). Merdeka Belajar Curriculum: A Study on EFL Teachers' Varying Expressions of Agency. *Voices of English Language Education Society*, *7*(2), 335-344. https://doi.org/10.29408/veles.v7i2.22517

Maharani, A., Putri, A. M. ., Narayana, B. ., Prayitna , B. A. ., Huzaeron , A., & Muhammad, M. (2025). Hambatan dalam Media Pembelajaran Kontekstual (Contextual Teaching and Learning) di Sekolah Dasar. *Jurnal Literasi Digital*, *5*(2), 211–220. https://doi.org/10.54065/jld.5.2.2025.827

McNeil, S. G., Ahlf, M., & Ford, C. D. (2025). Exploring nontraditional graduate students' online engagement: an instrumental case study of learners' perceptions of purposefully designed activities. *International Journal of Educational Technology in Higher Education*, *22*(1), 53. https://doi.org/10.1186/s41239-025-00549-7

Mensah, F. S. (2025). Reclaiming agency in instructional technology integration: a praxeological analysis of pre-service mathematics teachers' roles in a GeoGebra-based model lesson. *In Frontiers in Education (Vol. 10*, p. 1670170). Frontiers. https://doi.org/10.3389/feduc.2025.1670170

Mukadimah, H. (2025). Exploring teacher resilience in Indonesia: A scoping review of challenges, strategies, and support mechanisms. *Jurnal Ilmiah WUNY*, *7*(2), 44-54. http://journal.uny.ac.id/index.php/wuny

Nasution, I. N., & Indrasari, S. Y. (2024). Twenty Years of Change: A Systematic Literature Review of Indonesian Teachers' Responses to Curriculum Change. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran, dan Pembelajaran*, *10*(1), 100-112. https://e-journal.undikma.ac.id/index.php/jurnalkependidikan/index

Prates, U., Cruz, M., Mascarenhas, D., & Maia-Lima, C. (2025). Technology Experiences in Initial Teacher Education: A Systematic Review. *Open Education Studies*, *7*(1), 20240059. https://doi.org/10.1515/edu-2024-0059

Priestley, M., Alvunger, D., Philippou, S., & Soini, T. (Eds.). (2021). *Curriculum making in Europe: Policy and practice within and across diverse contexts*. Emerald Publishing. https://doi.org/10.1108/978-1-83867-735-020211002

Putri, M. N., & Budiraharjo, M. (2024). Language teacher agency in facing freedom-to-learn curriculum in two towns in Java. *ELTR Journal*, *8*(2), 82-102. https://doi.org/10.37147/eltr.v8i2.193

Qin, S., Jia, S., & Su, S. (2025). How does teacher collaboration impact teachers' innovation ability? The chain mediation of teaching motivation and teaching efficacy. *Humanities and Social Sciences Communications*, *12*(1), 1-12. https://doi.org/10.1057/s41599-025-04965-y

Rini, R. Y., & Indah, O. D. (2023). Improving Children's Ability in Knowing Vocabulary through the Experiential Learning Model Approach. *Jurnal Dieksis ID*, *3*(1), 23–34. https://doi.org/10.54065/dieksis.3.1.2023.233

Schlunegger, M. C., Zumstein-Shaha, M., & Palm, R. (2024). Methodologic and data-analysis triangulation in case studies: A scoping review. *Western Journal of Nursing Research*, *46*(8), 611-622. https://doi.org/10.1177/01939459241263011

Stahl, N. A., & King, J. R. (2020). Expanding approaches for research: Understanding and using trustworthiness in qualitative research. *Journal of developmental education*, *44*(1), 26-28. http://www.jstor.org/stable/45381095

Tao, L., & Wang, Y. (2024). Collective agency among Chinese university EFL teachers in the era of research excellence. *Humanities and Social Sciences Communications*, *11*(1), 1-8. https://doi.org/10.1057/s41599-024-03745-4

Tripathi, T. (2025). Teacher Agency in Implementing Inclusive Education Policy: A Mixed-Methods Study of Private Schools Under India's Right to Education Act. *In Frontiers in Education (Vol. 10*, p. 1678998). Frontiers. https://doi.org/10.3389/feduc.2025.1678998

Wang, L. (2022). English language teacher agency in response to curriculum reform in China: An ecological approach. *Frontiers in psychology, 13*, 935038. https://doi.org/10.3389/fpsyg.2022.935038

Wijayanti, T., Kurniawan, M. A., Rachman, M., Uddin, H. R., & Rosyidi, M. I. (2025). Smart Citizen Learning Model: Innovation in Realizing Students Characters. *Pedagonal: Jurnal Ilmiah Pendidikan,* 9(2), 172-179. https://doi.org/10.55215/pedagonal.v9i2.44

Zhang, J., Li, Y., Zeng, Y., & Lu, J. (2024). Exploring the mediating role of teacher identity between professional learning community and teacher resilience: Evidence from Eastern China. *Humanities and Social Sciences Communications*, *11*(1), 1-9. https://doi.org/10.1057/s41599-024-03800-0