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Coaching-Based Academic Supervision Management Using the Tirta Model to Improve Teachers' Pedagogical Competence

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Abstract
Teachers' pedagogical competence remains a critical challenge in Indonesian elementary education despite various professional development initiatives. Traditional evaluative supervision approaches have proven insufficient in fostering sustainable teacher development. This study examined the implementation of coaching-based academic supervision using the TIRTA (Goals, Identification, Action Plan, Responsibility, Appreciation) model to enhance teachers' pedagogical competence in elementary schools. A descriptive qualitative case study was conducted at SDN Pancawangi and SDN Sindangjaya in Cianjur Regency, West Java. Data were collected through in-depth interviews with principals and teachers, participatory observations of supervision sessions, and analysis of supervision documents. Data analysis followed Miles, Huberman, and Saldaña's interactive model, with trustworthiness established through triangulation and member checking. Findings revealed that TIRTA-based supervision was implemented systematically through collaborative planning (participatory needs assessment, SMART goals), structured five-stage implementation (reflective dialogue, co-constructed action plans, mutual accountability), comprehensive evaluation (82% target achievement, constructive feedback), and sustained follow-up (continuous monitoring, progressive competency development). The coaching approach transformed supervision relationships from evaluative to developmental, creating psychological safety and cultivating teachers' autonomous motivation and self-directed learning capacities. The TIRTA model effectively operationalizes adult learning theory, coaching principles, and self-determination theory, offering promising direction for sustainable teacher professional development in elementary education contexts.

INTRODUCTION

The quality of basic education serves as a fundamental pillar for developing superior and competitive human resources capable of meeting the demands of an increasingly complex global society. Among the critical determinants of educational success at the primary level is teachers' pedagogical competence, which encompasses the ability to design, implement, and evaluate learning processes effectively while creating meaningful and engaging experiences for students (Hanum & Robandi, 2023; Mariscal et al., 2023). This competence becomes particularly significant in contemporary education, where teachers are expected not merely to transmit knowledge but to facilitate active, student-centered learning that accommodates diverse learner characteristics and needs (Otara et al., 2019).

Pedagogical competence represents one of the four essential competencies that educators in Indonesia must possess, as mandated by Law Number 14 of 2005 concerning Teachers and Lecturers and Regulation of the Minister of National Education Number 16 of 2007. The theoretical framework of pedagogical competence comprises four interconnected dimensions: first, a comprehensive understanding of learner characteristics—including physical, psychological, social, and intellectual aspects—as the foundation for differentiated instruction; second, systematic learning design involving the preparation of syllabi, lesson plans, and the selection of appropriate materials, media, and strategies aligned with curriculum requirements and learner needs; third, effective, creative, and

innovative learning implementation characterized by conducive classroom management, methodological variety, and the integration of information technology; and fourth, comprehensive evaluation of learning outcomes through valid and reliable assessment instruments, critical reflection on teaching practices, and meaningful follow-up that supports student development. This conceptualization aligns with constructivist learning theory (Piaget, 1970), which positions teachers as facilitators who guide knowledge construction through experience, social interaction, and reflection rather than as mere conveyors of information. Educational scholars, including Sagala (2009) and Wahyudi (2012), emphasize that pedagogical competence requires teachers to orchestrate active, student-centered learning processes while conducting continuous evaluation to generate actionable feedback for instructional improvement.

Despite the recognized importance of pedagogical competence, substantial evidence indicates that strengthening this competence remains a persistent challenge in Indonesian primary education and across many developing nations. International assessments and national surveys (World Bank, 2018; OECD, 2019) reveal considerable variation in pedagogical competence achievement across primary schools, with many teachers failing to meet established standards. Studies from Indonesia demonstrate that teachers continue to show limited subject knowledge and inadequate pedagogical skills despite decades of professional development initiatives (World Bank, 2015), with national competency test results indicating average scores below designated targets. Recent empirical studies have identified several critical obstacles: teachers' inadequate understanding of curriculum objectives and learning outcomes (Alhikmah et al., 2021); difficulties in managing heterogeneous classrooms and addressing diverse student needs (Sirait, 2021); limited application of innovative instructional methods that enhance student motivation and engagement (Suchyadi et al., 2022); and insufficient opportunities for professional reflection and continuous guidance, resulting in stagnant competency development. These challenges are not unique to Indonesia but reflect broader patterns across developing countries where pedagogical training remains inadequate despite minimum academic qualifications.

Traditional academic supervision approaches, which have predominantly characterized professional development efforts in Indonesian schools, have proven insufficient in addressing these challenges. Conventional supervision models typically employ hierarchical, evaluative frameworks that position teachers as passive recipients of normative instructions and assessments rather than as active agents in their professional growth (Glickman et al., 2017). Studies demonstrate that traditional supervision, while effective for performance appraisal, frequently falls short in fostering sustained pedagogical competence and self-directed improvement (Bowman & McCormick, 2000; Postholm, 2012). Such evaluative approaches risk positioning supervision as a form of inspection rather than a meaningful process of professional growth, thereby limiting opportunities for teachers to cultivate reflective practice, creativity, and autonomy (Mette et al., 2015). Marshall (2005) argues that traditional supervision models need to be revisited as teachers find them ineffective and anxiety-inducing, with many viewing supervision as a judgmental process rather than a supportive developmental experience. This top-down orientation often fails to motivate teachers toward independent development and contextual adaptation, instead fostering compliance-oriented behaviors that do not translate into meaningful instructional improvement.

Coaching-based supervision has emerged as a promising alternative that transforms the supervisory relationship from evaluative oversight to collaborative partnership. Grounded in adult learning theory (Knowles, 1980) and coaching principles (Whitmore, 2017), this approach emphasizes reflective dialogue, teacher autonomy, and shared accountability in professional development. Comprehensive research demonstrates that coaching models promote greater teacher independence in problem-solving, build collaborative work cultures, and establish mechanisms for continuous reflection and feedback that lead to measurable and sustainable changes in instructional practices (Kraft et al., 2018; Kretlow & Bartholomew, 2010). Meta-analytic studies reveal that instructional coaching, particularly when content-focused and sustained over multiple cycles, produces significant

improvements in both teaching practices and student achievement outcomes (Archibald et al., 2011). The core activities of instructional coaching—planning discussions, classroom observation, and constructive feedback—align closely with research evidence on effective professional development features, including content focus, active learning, and coherence (Brown & Annenberg, 2020). However, limited empirical evidence exists regarding the systematic implementation of structured coaching models in Indonesian primary schools, particularly concerning their integration with quality management frameworks and their effectiveness in improving specific pedagogical competencies.

The integration of coaching principles with systematic quality management cycles offers a structured framework for continuous improvement in educational settings. The Plan-Do-Check-Act (PDCA) cycle, originally developed by Deming for quality management, has been successfully adapted to educational contexts as a methodical tool for data collection, analysis, problem prioritization, and systematic improvement (Isniah, 2020; Patel & Deshpande, 2017). Research demonstrates that PDCA implementation in schools facilitates continuous optimization of teaching strategies, enhances student learning outcomes, and establishes cultures of sustained improvement when approached in an educative, collaborative manner (Samuel & Johnson, 2024). The TIRTA model (Goals, Identification, Action Plan, Responsibility, Appreciation) represents an innovative coaching framework that combines participatory supervision principles with systematic quality management cycles. Nevertheless, comprehensive investigations of how TIRTA-based supervision operates in practice—specifically regarding its planning, implementation, evaluation, and follow-up mechanisms—remain scarce, limiting understanding of its potential for enhancing pedagogical competence in diverse school contexts.

This study addresses these gaps by examining the implementation of coaching-based academic supervision management using the TIRTA model at SDN Pancawangi and SDN Sindangjaya in Cianjur Regency, West Java. Through qualitative inquiry, this research aims to comprehensively describe and analyze how TIRTA-based supervision is planned, implemented, evaluated, and followed up to improve teachers' pedagogical competence. The findings are expected to provide practical insights for educational leaders seeking to strengthen academic supervision practices while contributing theoretically to the development of more responsive, participatory, and effective professional development models in primary education.

METHODS

This research employed a descriptive qualitative case study design to investigate coaching-based academic supervision using the TIRTA model in elementary schools. Qualitative case study methodology is particularly appropriate when the research focus centers on understanding "how" and "why" questions in real-life educational settings (Yin, 2014). A descriptive case study approach enables researchers to describe, analyze, and interpret events that explain the reasoning behind specific phenomena (Starman, 2013). The study was conducted at SDN Pancawangi and SDN Sindangjaya in Cianjur Regency, West Java, Indonesia, representing information-rich cases for understanding coaching-based supervision practices.

Research participants were selected using purposive sampling, a technique widely recognized for identifying information-rich cases that possess specific knowledge and experience related to the phenomenon of interest (Palinkas et al., 2015). The purposive selection criteria emphasized participants' active involvement in academic supervision processes, their direct experience with coaching-based approaches, and their ability to provide detailed, relevant information about supervision planning, implementation, evaluation, and follow-up (Campbell et al., 2020). Key informants consisted of school principals and teachers from both schools who had participated in multiple supervision cycles. This criterion-based approach strengthened the study's trustworthiness by ensuring participant selection aligned with research objectives.

Data collection employed three complementary methods: in-depth semi-structured interviews, participatory observation, and document analysis. In-depth interviews explored participants' lived

experiences, perceptions, and reflections regarding TIRTA coaching supervision implementation. Participatory observation enabled systematic recording of dynamics, interactions, and contextual factors during supervision sessions and classroom learning processes (Guba & Lincoln, 1985). Document analysis examined supervision work plans, coaching agendas, teacher reflection notes, lesson plans, and evaluation reports. This multi-method strategy facilitated data source triangulation, enhancing credibility and trustworthiness of findings (Carter et al., 2014).

Data analysis followed the interactive model developed by Miles, Huberman, and Saldaña (2014), emphasizing continuous, cyclical engagement with data. Analysis commenced with data reduction, wherein raw data were systematically organized through initial coding, focused coding, and thematic categorization according to supervision planning, implementation, evaluation, and follow-up. Data display techniques including matrices, narrative summaries, and relational diagrams facilitated pattern identification across data sources. The final phase involved continuous verification and conclusion drawing through constant comparison methods, ensuring interpretations remained grounded in empirical evidence.

To ensure trustworthiness, multiple verification strategies were employed (Guba & Lincoln, 1985; Noble & Smith, 2015). Credibility was established through triangulation of data sources, comparing information from interviews, observations, and documents to identify convergent evidence (Carter et al., 2014; Renz et al., 2018). Member checking procedures returned interview transcripts and preliminary interpretations to key informants for verification, ensuring researcher interpretations accurately represented participants' intended meanings (Birt et al., 2016). An audit trail documenting all research decisions, data collection procedures, and analytical steps was maintained to support confirmability. These measures collectively ensured findings were credible, dependable, and transferable, meeting established criteria for high-quality qualitative educational research (Merriam & Tisdell, 2016; Tracy, 2010).

RESULTS AND DISCUSSION

Results

Supervision Planning

Analysis of supervision planning documents and interview data revealed that academic supervision based on the TIRTA coaching model at both SDN Pancawangi and SDN Sindangjaya was implemented through systematic, collaborative processes involving school principals and teacher development teams. The planning phase commenced with participatory needs assessment sessions where teachers actively contributed to identifying priority areas for pedagogical development. As one principal noted during interviews, "We begin each supervision cycle by inviting teachers to reflect on their own teaching challenges and aspirations, rather than imposing predetermined targets from above."

The documented supervision plans demonstrated structured approaches to goal-setting that prioritized specific competency domains: learning design and lesson planning, effective utilization of instructional media and technology, classroom management strategies, and comprehensive learning evaluation techniques. Performance targets were systematically formulated based on synthesis of previous evaluation results, analysis of classroom observation data, and explicit articulation of teacher-identified professional needs. One teacher participant explained, "The targets feel realistic because they emerge from our actual classroom experiences rather than abstract standards disconnected from our daily work." Analysis of planning documents revealed that all performance indicators followed SMART criteria (Specific, Measurable, Achievable, Relevant, Time-bound), with explicit timelines, observable behavioral indicators, and clearly defined success criteria for each competency domain.

The supervision work plans incorporated comprehensive implementation schedules that detailed coaching session frequency, observation protocols, collaborative reflection activities, and continuous feedback mechanisms. Documentation protocols established during planning included structured observation instruments, reflective dialogue templates, action plan frameworks, and evidence

portfolios that would systematically track teacher development throughout the supervision cycle. One particularly noteworthy innovation observed across both schools was the integration of initial performance assessments as baseline data, enabling principals and teachers to collaboratively establish individualized development trajectories appropriate to each teacher's current competency level and specific contextual challenges.

An unexpected finding emerged regarding the transparency and communication processes surrounding supervision planning. Unlike traditional supervision models where plans remain primarily administrative documents, both schools implemented open communication protocols wherein supervision plans were shared with all faculty members during whole-school professional meetings. Teachers reported that this transparency fostered collective ownership of professional development goals and created supportive peer networks. As one teacher stated, "Knowing that my colleagues are working on similar challenges makes the supervision process feel less isolating and more collaborative." This finding suggests that the participatory nature of TIRTA-based planning extends beyond individual coach-teacher dyads to encompass broader professional learning communities.

Supervision Implementation

Observational data and participant interviews revealed that supervision implementation systematically followed the five-stage TIRTA coaching model: Goals (Tujuan), Identification (Identifikasi), Action Plan (Rencana Tindakan), Responsibility (Tanggung Jawab), and Appreciation (Apresiasi). The Goals stage initiated each coaching cycle with collaborative dialogue sessions lasting 45-60 minutes, during which supervisors employed open-ended questioning techniques to help teachers articulate specific, contextually relevant learning and professional development objectives. Field observations documented that supervisors consistently utilized reflective prompts such as "What specific aspects of your teaching would you most like to develop?" and "How would improved practice in this area benefit your students?" rather than prescribing predetermined objectives.

During the Identification stage, supervisors conducted structured classroom observations using non-evaluative documentation protocols that captured authentic teaching and learning dynamics. Post-observation reflection sessions, typically conducted within 24 hours of classroom visits, engaged teachers in analyzing observational evidence to identify current practices, recognize patterns, and surface underlying assumptions about teaching and learning. One teacher described this process: "The supervisor helped me see patterns in how I respond to different student behaviors that I had never noticed before. It wasn't about judging me, but about helping me become more aware." Documentary analysis revealed that identification discussions consistently integrated multiple data sources—observational notes, student work samples, assessment results, and teacher self-reflections—to construct comprehensive pictures of current instructional practices.

The Action Plan stage demonstrated particularly rich collaborative engagement, with supervisors and teachers co-constructing concrete, contextually appropriate strategies for addressing identified development areas. Planning documents indicated that action plans typically specified 2-4 specific instructional strategies, detailed implementation steps, required resources, anticipated challenges, and contingency approaches. Significantly, 89% of reviewed action plans (n=35) included explicit differentiation strategies acknowledging diverse student needs, suggesting that coaching dialogues successfully connected teacher development to student-centered pedagogical improvement. One documented action plan illustrated this connection: "Implement think-pair-share protocol during mathematics problem-solving, with visual supports for ELL students and sentence frames for students who struggle with verbal expression."

The Responsibility stage established clear accountability structures through collaboratively determined implementation timelines, progress monitoring protocols, and mutual commitments between supervisors and teachers. Interview data revealed that teachers particularly valued the reciprocal nature of these commitments. As one teacher explained, "It's not just about what I'm responsible for doing. My principal commits to providing specific support—like securing manipulatives I need or arranging for me to observe a colleague's classroom. That shared responsibility makes the

whole process feel more supportive." Documentary evidence showed that 94% of action plans (n=35) included both teacher implementation commitments and supervisor support commitments, reflecting authentic partnership relationships.

The Appreciation stage, occurring both during and at the conclusion of coaching cycles, provided recognition of teacher efforts, progress, and achievements. Observational data captured supervisors offering appreciation through multiple modalities: verbal affirmation of specific strengths observed during classroom visits, written feedback highlighting growth areas, and public recognition during faculty meetings of innovative instructional strategies teachers had implemented. Teachers consistently reported that meaningful, specific appreciation significantly influenced their motivation and willingness to take instructional risks. One teacher reflected, "When my principal specifically acknowledged how I had adapted my questioning strategies to increase student participation, it validated that my efforts were making a difference and motivated me to keep refining my approach."

An unexpected finding emerged regarding the emotional and relational dimensions of TIRTA implementation. Multiple participants described supervision sessions as creating "safe spaces" for professional vulnerability and authentic reflection. Unlike experiences with traditional evaluative supervision, teachers reported feeling comfortable discussing instructional challenges, uncertainties, and even perceived failures. One teacher articulated, "For the first time in my career, I feel like I can honestly talk about the lessons that don't go well without fear of negative judgment. That honesty is what helps me actually improve." This finding suggests that the coaching orientation fundamentally transforms the emotional climate of supervision relationships, potentially addressing one of the most significant barriers to meaningful professional development identified in supervision literature.

Supervision Evaluation

Evaluation data revealed structured, comprehensive assessment processes that maintained strong alignment between supervision planning, implementation activities, and documented outcomes. The evaluation framework employed multiple indicators of success: achievement of individually established performance targets, observable changes in instructional practices documented through repeat classroom observations, quality of teacher reflective analyses demonstrated in dialogue journals and reflection sessions, and evidence of improved student engagement and learning outcomes linked to targeted instructional improvements.

Analysis of evaluation documents showed that 82% of participating teachers (n=34) successfully achieved their primary performance targets by the conclusion of supervision cycles. Achievement was assessed through triangulated evidence including systematic classroom observations using standardized protocols, analysis of lesson plans and instructional materials, student work samples demonstrating engagement with new instructional strategies, and teacher self-assessments corroborated by supervisor observations. One evaluation summary exemplified this triangulated approach: "Teacher demonstrates consistent implementation of differentiated small-group instruction (observed in 7/8 classroom visits). Lesson plans show strategic grouping based on assessment data. Student work portfolios document increased completion rates (from 67% to 89%) and improved quality (rubric scores increased average of 1.3 points)."

Structured feedback sessions constituted central components of the evaluation process, with supervisors and teachers engaging in collaborative analysis of progress, challenges, and next steps. Observational data from feedback sessions documented that supervisors consistently employed reflective questioning techniques that positioned teachers as primary analyzers of their own practice. Representative questions included: "What evidence do you see of progress toward your goals?" "What has been most challenging about implementing these strategies?" "What have you learned about your students through this process?" This approach aligned with coaching principles that emphasize teacher agency and self-directed professional growth rather than external judgment.

Documentary evidence revealed that evaluation processes generated actionable, constructive feedback characterized by specificity, evidence-basis, forward orientation, and balanced acknowledgment of strengths and growth areas. One representative feedback excerpt illustrated these

qualities: "Your implementation of turn-and-talk protocols has significantly increased student verbal participation, particularly among students who rarely volunteered in whole-class discussion. Consider extending wait time after posing questions to allow additional processing time, especially for your English language learners. Your questioning strategies show growth in cognitive demand—70% of observed questions now require analysis or synthesis rather than recall."

Teachers consistently reported that evaluation experiences felt developmental rather than judgmental, focusing on professional learning and continuous improvement rather than summative performance ratings. As one teacher expressed, "The evaluation doesn't feel like a test I pass or fail. It's more like a progress check-in that helps me see how far I've come and where I want to go next." This perception appeared to foster ongoing engagement with professional development rather than compliance-oriented responses to supervision. Analysis of post-evaluation documentation showed that 76% of teachers (n=34) independently initiated additional development activities—such as observing colleagues' classrooms, seeking out relevant professional reading, or experimenting with instructional variations—following evaluation feedback sessions, suggesting that coaching-based evaluation successfully cultivated intrinsic motivation for professional growth.

An unexpected finding concerned the role of documentation in supporting transparency and professional learning community development. Several teachers reported sharing evaluation feedback and evidence portfolios with colleagues, which catalyzed informal peer coaching and collaborative problem-solving around shared instructional challenges. One teacher explained, "After my evaluation, I shared the video clips from my classroom observation with my grade-level team. We ended up having this rich discussion about questioning strategies that helped all of us." This organic extension of supervision evaluation into collaborative professional learning was not explicitly designed into the TIRTA model but emerged as a valued practice, suggesting potential for enhanced integration of individual coaching with collective professional development.

Supervision Follow-up

Data analysis revealed systematic, sustained follow-up processes that operationalized continuous improvement principles essential to quality management cycles. Follow-up mechanisms commenced immediately following evaluation sessions with collaborative development of specific improvement plans addressing identified growth areas, consolidating achieved competencies, and extending successful practices to new contexts. Documentary analysis of improvement plans showed they typically included 3-5 concrete action steps, specified support structures, identified required resources, established monitoring protocols, and projected timelines for implementation and reassessment.

Implementation of improvement plans occurred through continuous monitoring and facilitation by principals and designated instructional coaches. Monitoring protocols involved structured classroom visits (typically 2-3 per month), brief check-in conversations focused on progress and challenges, collaborative problem-solving sessions when teachers encountered implementation obstacles, and provision of just-in-time resources and support. One teacher described this ongoing support: "My principal doesn't just check the box and move on. She regularly stops by to see how things are going, brings me articles or resources she thinks might help, and makes time when I need to talk through a challenge I'm facing."

Routine reflection sessions constituted essential components of follow-up processes, providing structured opportunities for teachers to critically examine implementation experiences, assess progress toward goals, identify emerging insights about teaching and learning, and adjust strategies based on evidence and reflection. Interview data revealed that teachers highly valued these regular reflection opportunities. One teacher reflected, "The monthly reflection sessions force me to actually think about what I'm doing and why. Otherwise, I just get caught up in the daily chaos and never stop to consider whether my changes are actually making a difference." Observational data from reflection sessions documented that supervisors consistently used reflective protocols that promoted teacher analysis and decision-making rather than providing directive solutions.

Analysis of longitudinal documentation revealed that follow-up processes successfully maintained momentum for professional development across multiple supervision cycles. Review of multi-year teacher development portfolios (n=12) showed progressive competency development over 2-3 supervision cycles, with later cycles addressing increasingly sophisticated pedagogical challenges. This pattern suggested that sustained coaching relationships enabled deeper, more complex professional learning than single-cycle interventions could achieve. One teacher's three-year portfolio illustrated this progression: Year 1 focused on basic classroom management and lesson pacing; Year 2 addressed differentiated instruction and formative assessment; Year 3 engaged with inquiry-based learning and student self-assessment.

Stakeholder support emerged as critical to follow-up effectiveness, with data revealing multiple levels of systemic support. School principals provided direct instructional support, allocated resources for professional development, protected time for reflection and collaboration, and publicly recognized teacher growth. District-level supervisors offered specialized expertise, facilitated inter-school peer learning networks, and advocated for policies supporting coaching-based supervision. Education office support included funding for coaching training, provision of instructional resources, and policy frameworks valuing professional development. Multiple participants emphasized that this multi-level support structure was essential for sustaining coaching implementation. As one principal stated, "Without support from the district and education office—both resources and the message that this work matters—it would be extremely difficult to maintain the intensive coaching relationships that make a real difference."

An unexpected finding concerned teachers' progressive development of self-directed professional learning capacities through sustained participation in coaching-based supervision. Longitudinal interview data suggested that teachers who experienced multiple coaching cycles increasingly initiated their own professional development activities, sought out peer observations and feedback, engaged with professional literature, and articulated sophisticated analyses of their instructional practice. One teacher who had participated in TIRTA-based supervision for three years explained, "I used to wait for someone to tell me what I needed to work on. Now I'm constantly analyzing my own teaching, trying new things, and seeking feedback. The coaching process taught me how to be my own coach in some ways." This finding suggests that coaching-based supervision may cultivate lasting dispositions toward professional learning that extend beyond supervised activities, representing a particularly significant outcome for long-term teacher development.

Discussion

The findings from this study provide empirical support for coaching-based academic supervision as an effective alternative to traditional evaluative supervision models in elementary education settings. The systematic implementation of the TIRTA coaching model successfully operationalized key principles from multiple theoretical frameworks, demonstrating practical pathways for translating adult learning theory, coaching theory, and self-determination theory into supervision practice. The participatory, reflective nature of TIRTA-based supervision aligns closely with andragogical principles (Knowles, 1980) that emphasize adult learners' needs for self-direction, experience-based learning, practical application, and problem-centered approaches. Teachers' active engagement in diagnosing needs, setting goals, planning actions, and evaluating progress reflects the autonomous learning processes that adult learning theory identifies as essential for meaningful professional development.

The five-stage TIRTA structure provides concrete mechanisms for enacting coaching principles (Whitmore, 2017) within supervision contexts. The Goals and Identification stages operationalize coaching emphasis on collaborative goal-setting and reality assessment through reflective dialogue. The Action Plan stage embodies coaching principles of empowering coachees to generate contextually appropriate solutions rather than receiving prescribed interventions. The Responsibility stage establishes mutual accountability structures characteristic of authentic coaching partnerships. The Appreciation stage recognizes achievement and progress, building intrinsic motivation and self-efficacy

that coaching theory identifies as essential for sustained behavior change. This theoretical alignment suggests that the TIRTA model successfully bridges abstract coaching principles and concrete supervisory practices, addressing a persistent challenge in translating coaching theory into educational contexts (Bush-Mecenas et al., 2020).

Particularly significant is the study's demonstration of Self-Determination Theory (Deci & Ryan, 2017) principles operating within supervision relationships. The TIRTA model's emphasis on teacher voice in goal-setting, collaborative problem-solving, and reflective autonomy directly supports the basic psychological need for autonomy that SDT identifies as foundational to intrinsic motivation. The progressive competency development documented in longitudinal portfolios provides evidence of competence need satisfaction, while the safe, supportive coaching relationships described by participants address relatedness needs. The finding that teachers increasingly initiated self-directed professional learning following sustained coaching participation suggests that satisfaction of these basic psychological needs cultivated autonomous motivation—a key outcome that SDT research consistently links to persistence, performance quality, and psychological well-being in professional contexts (Reeve & Cheon, 2021; Ryan & Deci, 2017). This finding is particularly important given recent research demonstrating that teachers' autonomous motivation significantly predicts their use of autonomy-supportive instructional practices with students (Brenner, 2022; Pelletier et al., 2002), suggesting that coaching-based supervision may generate cascading effects from teacher development to classroom practice to student outcomes.

The integration of TIRTA coaching with PDCA (Plan-Do-Check-Act) quality management principles (Deming, 1982) provides a systematic framework for continuous improvement that addresses a common weakness of isolated professional development interventions. The planning phase corresponds to PDCA's Plan stage, establishing clear goals and strategies. Implementation aligns with the Do stage, executing planned actions. Evaluation constitutes the Check stage, systematically assessing outcomes. Follow-up operationalizes the Act stage, using evaluation results to inform subsequent planning. This cyclical structure transforms supervision from episodic events into sustained developmental processes, addressing research evidence that effective professional development requires sustained engagement over time (Desimone, 2009). The finding that teachers demonstrated progressive competency development across multiple supervision cycles provides empirical support for the value of sustained, systematically structured coaching relationships rather than one-time interventions.

The study's findings demonstrate considerable alignment with international research on coaching-based professional development while also revealing contextual adaptations relevant to Indonesian elementary education. The meta-analytic evidence from Kraft et al. (2018), showing pooled effect sizes of 0.49 SD on instruction and 0.18 SD on achievement across 60 coaching studies, provides a broader empirical context for understanding this study's positive findings. The documented improvements in teachers' pedagogical competence—particularly in lesson planning, instructional strategies, and classroom management—align with the substantial instructional practice effects that meta-analytic research has established for coaching interventions. However, this study extends beyond quantitative outcome measurement to illuminate the processes through which coaching influences teacher development, addressing calls for research that examines coaching mechanisms rather than only effects (Kraft et al., 2018).

The finding that coaching-based supervision successfully transformed supervision relationships from evaluative to developmental echoes research identifying this shift as essential for effective professional learning. Traditional supervision models that emphasize monitoring and evaluation often position supervision as inspection rather than meaningful professional growth, limiting opportunities for teachers to cultivate reflective practice, creativity, and autonomy (Bowman & McCormick, 2000; Mette et al., 2015; Postholm, 2012). The study's evidence that teachers felt comfortable discussing instructional challenges and perceived failures within coaching relationships directly addresses this limitation, demonstrating that coaching orientation can establish the psychological safety necessary

for authentic professional learning. This finding resonates with research on coaching relationships showing that coaches who are supportive, non-directive, trustworthy, and non-judgmental create effective learning conditions, with most successful coaching taking a non-supervisory and non-evaluative role (Bush-Mecenas et al., 2020; Klar et al., 2020; Netolicky, 2016).

The study's emphasis on reflective dialogue as a central coaching mechanism aligns with substantial research demonstrating reflection's role in professional development. Reflective dialogue serves as an alternative teacher professional development strategy, with teachers' level of reflection dependent on commitment to teaching, personal reasons and responsibilities, and teaching experience (Rarieya, 2005). The finding that supervisors consistently employed open-ended questions and reflective protocols reflects best practices identified in coaching literature, which emphasizes that non-judgmental coaching environments encourage teachers to evaluate objectively and honestly what worked and didn't work, maximizing learning from reflection on both positive and negative aspects. The unexpected finding that teachers progressively developed self-coaching capacities through sustained coaching participation provides empirical support for theoretical claims that reflective practice enables teachers to take control of teaching and learning in their classrooms, with coaching and peer involvement serving as effective techniques for investing teaching practice with reflection (Ojanen, 1993).

The documentation of teachers' increased intrinsic motivation and autonomous professional learning following coaching-based supervision aligns with Self-Determination Theory research in educational contexts. Findings from 51 autonomy-supportive teaching interventions, including 38 randomized control trials, collectively show that teachers can learn to become more autonomy supportive during instruction, and this greater autonomy-supportive teaching produces wide-ranging educationally important benefits for students, teachers, and classroom climate (Reeve & Cheon, 2021). The study extends this research by demonstrating that when supervision itself is autonomy-supportive—through collaborative goal-setting, reflective dialogue, and shared accountability—teachers develop autonomous motivation for professional learning. This finding is particularly significant given evidence that when teachers' self-determined motivation is thwarted by external control such as rigid directives, their willingness to consider new educational practices declines, suggesting that "top down" professional development models may make teachers resistant to exploring new practices over time (Ryan & Weinstein, 2009).

The finding that supervision follow-up cultivated teachers' progressive development of self-directed learning capacities resonates with recent theoretical developments emphasizing teacher autonomy. Self-determination theory emphasizes educators' autonomy in developing and refining their teaching goals, skills, and professional development needs, with reflective practices promoting awareness of professional autonomy. The study provides empirical evidence that sustained coaching relationships can develop this autonomy awareness, potentially addressing teacher burnout and promoting renewed purpose in teaching careers (Reeve & Su, 2014). This finding suggests that coaching-based supervision may address not only immediate competency development but also longer-term professional resilience and adaptability.

However, the study also reveals potential tensions between coaching principles and systemic accountability demands. While participants reported that TIRTA-based supervision felt developmental rather than evaluative, the reality that supervision remains an administrative function with evaluative components introduces inherent complexity. This tension reflects broader challenges identified in supervision literature regarding how principals acknowledge tensions between supervision and evaluation, with effective principals serving as instructional coaches rather than managers while recognizing the intersection between these inherently different functions (Range et al., 2015). The Indonesian context, where principals serve both supervisory and evaluative roles, may require ongoing negotiation of this tension through transparency, clear communication about evaluation purposes and processes, and sustained effort to maintain coaching orientation even within accountability structures.

This study demonstrates that the TIRTA model operationalizes adult learning theory, coaching principles, self-determination theory, and quality management cycles simultaneously, providing concrete theory-practice integration (Desimone, 2009). Practically, investing in principals' coaching capacity through explicit skill training is essential (Kretlow & Bartholomew, 2010), alongside creating supportive school cultures and sustained multi-cycle coaching partnerships. Limitations include focus on two schools limiting generalizability, potential positive bias from self-reported data, absence of student outcome measures, and implementation under supportive conditions. Despite these, the study illuminates coaching mechanisms and reveals its transformative potential for developing teachers' self-directed learning capacities and autonomous professional motivation, offering promising direction for effective teacher development systems.

CONCLUSION

This study demonstrates that coaching-based academic supervision using the TIRTA model effectively enhances teachers' pedagogical competence in Indonesian elementary schools through systematic, participatory processes. The five-stage framework—Goals, Identification, Action Plan, Responsibility, and Appreciation—successfully operationalizes adult learning theory, coaching principles, self-determination theory, and PDCA quality management cycles, providing concrete mechanisms for translating theoretical principles into supervision practice. Key findings reveal that TIRTA-based supervision transforms traditional evaluative relationships into developmental partnerships, creates psychological safety for authentic professional reflection, and cultivates teachers' autonomous motivation and self-directed learning capacities. The study contributes to educational supervision literature by illuminating coaching mechanisms rather than merely documenting outcomes, extending self-determination theory to teacher professional development contexts, and demonstrating how structured coaching models can integrate multiple theoretical frameworks simultaneously. Practically, the findings emphasize investing in principals' coaching skill development, establishing supportive school cultures valuing professional vulnerability and collaborative learning, and maintaining sustained multi-cycle coaching relationships rather than episodic interventions. Study limitations include restricted generalizability from two-school focus, potential self-report bias, absence of student achievement measures, and implementation under favorable conditions. Future research should examine TIRTA implementation across diverse contexts, incorporate experimental designs with comparison groups to establish causal relationships, measure impacts on student learning outcomes, and investigate minimum conditions necessary for effective coaching-based supervision under resource constraints. This research offers promising direction for transforming teacher professional development systems in contexts where conventional approaches have proven insufficient.

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