Volume: 26 No 1 (2026) , pp. 17-26
P-ISSN: 1411-4585 E-ISSN: 2549-6743
DOI: https://doi.org/10.24036/pedagogi.v26i1.2936
Submitted: 26-02-21; Revised: 26-03-27; Accepted: 26-04-30

Pedagogi
Jurnal Ilmu Pendidikan
http://pedagogi.ppj.unp.ac.id/

Promoting School Companion Competency Model to Address New Policies and Digital Era Challenges

Yayah Rahyasih[1], Johar Permana[2], Liah Siti Syarifah[3]
[12]Department Educational Administration, Universitas Pendidikan Indonesia,
[3] Institut KH Ahmad Sanusi Sukabumi
* e-mail: rahyasih@upi.edu1, permanajohar@upi.edu 2, liahsitisyarifah.27@gmail.com 3

Abstract

This study aims to conceptualize and describe a new school companion competency model to guide educational practitioners in Indonesia following policy reform that abolished school supervisors. This reform coincides with rapid digital transformation, requiring new competencies such as collaboration, adaptability, and digital fluency. The study used a mixed-methods design over nine months, combining interviews and focus group discussions with participants experienced in supervisory transitions. The findings identify the Instructional Coaching Competencies (ICC) framework as a relevant model for current needs. The ICC model is adaptive and integrative, consisting of three dimensions: Digital Instructional Leadership, Digital Ethics and Communication, and Transformational Coaching. These redefine supervision as facilitation and partnership. The results are relevant beyond Indonesia, especially for decentralized systems undergoing similar reforms. The model also guides principals in strengthening leadership and professional competence. This study recommends broader application of ICC and further research to validate its impact.

Keywords: Coaching Competencies; Education supervision; Digital Competency; School management;

How to cite : Rahyasih, Y., Permana, J., & Syarifah, L. S. (2026). Promoting a School Companion Competency Model to Address New Education Policies and the Challenges of the Digital Era. *Pedagogi: Jurnal Ilmu Pendidikan*, 26(1). https://doi.org/https://doi.org/10.24036/pedagogi.v26i1.2936

INTRODUCTION

Educational supervision remains one of the most essential pillars of educational quality assurance and profes-sional accountability. It extends beyond administrative oversight to embody a moral and professional responsibility for ensuring that teaching and learning are effective, equitable, and continually improving (Pribadi & Rahyasih, 2021). In contemporary educational discourse, supervision represents a transformative partnership an interactive and reflective dialogue that links national education policies with the daily realities of classroom practice, enabling schools to evolve as learning organisations (Al-Kiyumi & Hammad, 2020; Rahman et al., 2024). Such a view positions supervision not merely as evaluative but as developmental, prioritising the empowerment of teachers through mentoring, feedback, and collaborative inquiry.

In Indonesia, this supervisory role has historically been central to the country's education governance. School supervisors have served as intermediaries between educational authorities and schools monitoring teacher perfor-mance, facilitating professional learning, and maintaining

alignment between curriculum policy and pedagogical practice (Ruhimat et al., 2024). However, a major structural change has recently altered this long-standing system. The issuance of the Regulation of the Ministry of State Apparatus and Bureaucratic Reform (PermenpanRB) Number 21 of 2024 formally abolished the position of school supervisor as part of a broader national initiative to streamline bureaucracy and decentralise administrative functions. While this reform was designed to promote efficiency and autonomy at the school level, it simultaneously disrupted the institutional mechanisms that ensured accountability, guidance, and professional mentoring. Consequently, a governance vacuum has emerged—one that threatens to weaken systemic coherence in maintaining educational quality.

This transformation raises two urgent questions: How can educational quality assurance be maintained in the absence of formal supervisory positions? And what new professional model can effectively substitute or reimagine the traditional supervisory role amid rapid digitalisation and policy reform? These questions are not unique to Indonesia. Across various education systems worldwide, the tension between bureaucratic control and professional autonomy continues to shape debates over effective supervision (Bhatnagar & Sharma, 2024; Kuiper et al., 2024a). The contemporary consensus suggests that hierarchical inspection must evolve into collegial, evidence-based, and digitally-empowered forms of professional coaching.

Traditional models of supervision have often struggled to balance authority with mentorship. In Indonesia, su-pervision historically mirrored the "instructional leadership" function found in many decentralised education sys-tems, wherein supervisors acted as critical friends rather than inspectors. Yet in practice, this ideal has been in-consistently realised. Recent studies document persistent patterns of top-down evaluation, excessive compliance monitoring, and limited dialogic engagement (Sulastri, 2024). Such practices have diminished teacher agency and stifled profes-sional creativity. As noted by Ruhimat et al (Ruhimat et al., 2024), the presence of "vertical bullying" within supervisory relationships has eroded mutual trust, shifting supervision away from developmental feedback toward bureaucratic control. Hence, the call for a paradigm shift is pressing—one that reframes supervision as a participatory, reflective, and transformative process.

International experiences corroborate this shift. In Oman, Al-Kiyumi and Hammad demonstrated that the effectiveness of supervision depends more on the supervisor's instructional leadership than on administrative authority. Similarly, Fischman et al (Fischman & Gandin, 2016) highlight that successful educational reform requires leaders who translate abstract policy goals into actionable pedagogical change through collaboration and evidence-informed decision-making. This perspective underscores the importance of adaptive leadership a model in which supervision facilitates continuous learning rather than enforces compliance. Within Indonesia's ongoing reform, such adaptive capacity is indispensable. Even in the absence of formal bureaucratic authority, the supervisory function must endure as a competency-based, coaching-oriented practice capable of guiding schools through systemic transformation.

Concurrently, the rapid digitalisation of education has fundamentally reshaped the conditions under which su-pervision occurs. The COVID-19 pandemic accelerated the integration of digital learning tools and catalysed new demands for digital leadership among educators (Abdullaeva et al., 2024). Modern supervision, therefore, requires expertise not only in pedagogy and assessment but also in digital literacy, ethics, and data-driven decision-making. The emerging frame-works of Teacher Professional Digital Competence (TPDC) emphasise that teachers and educational leaders must be proficient in digital technologies, critically aware of ethical implications, and capable of leveraging technology for student-centred learning (Demissie et al., 2022a). These developments point toward a pressing need for digital supervision or e-coaching, where professional dialogue and mentoring are supported by digital platforms. As Omodan (Omodan, 2025) argues, effective digital supervision requires both technical competence and organisational readiness for change ensuring equity, access, and ethical integration of technology within schools.

In this emerging landscape, the role of the school supervisor or its successor must be reconceptualised as a school companion: a professional facilitator who combines pedagogical, digital, and ethical expertise. Rather than inspecting for compliance, this companion guides schools through reflective inquiry, supports innovation, and culti-vates professional learning communities (D. Lewis & DeSantis, 2024). Such redefinition aligns with global movements toward distributed leadership and peer-based supervision, in which teachers collaborate as co-learners and engage in collective ac-countability for quality improvement.This collegial approach transforms supervision from a control mechanism into a process of mutual learning and shared responsibility key tenets of twenty-first-century professional educa-tion.

From a policy standpoint, this transformation requires new competency standards for educational facilitators that transcend traditional notions of inspection. Competency-based supervision prioritises capacity building over control fostering teachers' professional agency through continuous learning and reflective dialogue. Scholars such as Bhatnagar and Sharma assert that digital intelligence, empathy, and ethical sensitivity must complement technical proficiency. Without emotional intelligence and moral grounding, digital leadership risks replicating old patterns of coercion in new technological forms. Hence, a humanistic foundation rooted in trust, care, and relational ethics must underpin all future supervisory practices.

Within this framework, the current study seeks to explore and conceptualise an adaptive competency model for school companions professionals who can sustain educational quality in Indonesia's decentralised and digitally mediated system. This investigation arises from two interrelated imperatives: (1) the functional vacuum left by the abolition of the school supervisory role, and (2) the increasing necessity of sustainable professional development for teachers in the age of artificial intelligence. The study aims to (a) provide a conceptual framework for distributed, collaborative supervision compatible with decentralised governance; (b) empirically define the digital, ethical, and transformational competencies required of educational facilitators; and (c) inform policy reform that repositions teachers and school leaders as lifelong learners in communities of trust and accountability. As Al-Kiyumi and Hammad remind us, the essence of educational supervision lies not in enforcing compliance but in leading re-flective, data-informed change. The urgency of this research, therefore, extends beyond responding to policy aboli-tion it seeks to articulate how educational systems can preserve professional integrity and resilience amid acceler-ating technological and bureaucratic disruption.

METHODS

1. Research Approach and Timeline

This study was conceived to generate empirically grounded evidence capable of informing policy and profes-sional development in the Indonesian education sector. Given the multi-layered nature of the problem policy re-form, organizational change, and school-level practice—a mixed-methods approach was adopted to capitalize on the complementary strengths of qualitative depth and quantitative breadth. Contemporary guidance underscores that mixed methods are well-suited to education system questions, provided that integration strategies are explicit and planned from the outset (e.g., joint displays, meta-inferences) (Skamagki et al., 2024). The project unfolded over 9 months (January–September 2025) to permit iterative movement between strands, allowing insights from early qualitative work to sensitize instrument design and subsequent quantitative testing. Recent methodological discussions also recommend pacing data collection to enable design-level and interpretation-level integration rather than mere juxtaposition of strands (Creswell, J.W. and Creswell, 2018).

2. Research Design

A sequential exploratory design was implemented. The qualitative phase developed conceptual depth around how abolishing the school supervisor position has altered oversight, leadership, and quality assurance. It employed in-depth interviews (IDIs) and focus group

discussions (FGDs) with multiple stakeholders—former supervisors, principals, teachers, and education officials to surface lived experiences and generate an initial competency framework. The quantitative phase then tested and generalized key propositions via a cross-provincial survey measuring perceptions of reform impacts, readiness for new oversight mechanisms, and support for an adaptive coaching-oriented model. Current design literature emphasizes that exploratory. Then survey sequences are appropriate when theory building precedes theory testing and when instrument content must be grounded in participants' language.

3. Data Compilation Procedures

In-depth interviews. Semi-structured IDIs targeted stakeholders directly involved in or affected by the supervisory transition to elicit narratives of change and practical recommendations for rebuilding the function of school companionship. Interviews (≈60–90 minutes) were audio-recorded with consent and followed contemporary qualitative standards for reflexivity and transparency in protocol use. The approach aligns with recent guidance that prioritizes analytic alignment between questions, probes, and the intended interpretive claims in mixed-methods inquiry.

Focus group discussions (FGDs). FGDs (6–8 participants per group) were convened in selected schools to stimulate collective reflection on emergent practices after the role's abolition especially technological mediation and collegial supervision. Group interaction was leveraged to examine consensus and divergence in sense-making, con-sistent with recent qualitative method updates on harnessing dialogic data for conceptual saturation and theory elaboration (P. Limna, 2023).

Survey and questionnaire. A structured questionnaire derived from qualitative themes captured broader patterns among teachers, principals, and ex-supervisors. Items targeted perceived effectiveness of current oversight practices, demand for new competencies, and reform impacts on instructional quality. A five-point Likert response format ("strongly disagree" to "strongly agree") was adopted, following recent evidence on response options and psychometric performance in social-science instruments

Field observation. Non-participant observations were conducted at selected schools to document how guidance, evaluation, and professional learning occur in situ post-reform. Observational notes were structured with a checklist to reduce subjectivity and to support triangulation. Recent guidance emphasizes the value of non-participant obser-vation for capturing naturally occurring interactions while maintaining ethical safeguards and analytic rigor.

4. Population and Sampling

The population comprised current/former educational supervisors, principals, teachers, and relevant stakeholders (policymakers, community education officers, association representatives). For the qualitative phase, purposive sampling ensured participants had direct experience with supervisory transition and quality assurance processes. Contemporary work highlights that purposive strategies should be explicitly aligned to the phenomenon and level of analysis, with saturation judged conceptually rather than numerically(Hennink & Kaiser, 2022). In the quantitative phase, stratified random sampling captured diversity across urban rural settings and public–private schools, improving external validity and precision of subgroup estimates; current survey-sampling texts recommend stratification where heterogeneity across strata is expected.

5. Research Instruments

Interview guide. The semi-structured guide drew on the literature and policy context to steer conversations toward: (a) historical supervisory roles; (b) implications of policy change; (c) emergent school-level practices; and (d) re-quirements for a competency model. Recent qualitative instrument guidance stresses clear construct–question alignment and iterative piloting to enhance credibility (Bluhm et al., 2011).

Questionnaire. The survey underwent cognitive pretesting and a pilot to refine wording, ordering, and scale func-tioning. Instrument development followed recent best practices for questionnaire design, reliability, and validity assessment in social research.

Observation checklist. An observation instrument captured indicators of pedagogical support, digital integration, and collaborative problem-solving. Its structure was adapted from recent work on developing and validating obser-vation tools and checklists in educational settings.

6. Data Analysis

Qualitative analysis. Audio data were transcribed verbatim and analyzed using reflexive thematic analysis (RTA). Coding followed the contemporary six-phase trajectory familiarization, coding, theme development, review, defi-nition, and reporting implemented reflexively and theoretically coherent with the study's aims. Recent contribu-tions detail quality criteria and pitfalls to avoid when conducting and reporting RTA.

Quantitative analysis. Survey data were analyzed with descriptive statistics and inferential tests (t-tests/ANOVA/regression) appropriate to the measurement level and design. Model assumptions were examined and, where necessary, robust alternatives considered. Up-to-date pedagogical texts and primers emphasize transparent model checking and the careful selection of linear models for social-science data(Bringer et al., 2006).

Integration and triangulation. Methodological triangulation combined qualitative, quantitative, and observational evidence to corroborate patterns and surface discrepancies. Integration occurred at design (sequential exploratory), methods (connecting themes→items), and interpretation (joint meta-inferences) levels, consistent with current rec-ommendations to make integration an explicit analytic act rather than a post-hoc narrative. Credibility was further supported by member checking with a sub-sample of participants and peer debriefing, reflecting updated debates on how these techniques enhance trustworthiness when used meaningfully and transparently.

7. Ethical Considerations

All participants received study information and provided written informed consent. Identifiers were removed from transcripts and reports; pseudonyms were used throughout. The protocol received ethical clearance from the Institutional Review Board of Universitas Pendidikan Indonesia (UPI) and adhered to international guidance for research with human participants. While the Declaration of Helsinki remains the global touchstone, the World Med-ical Association initiated and released updates in 2024 to modernize protections (e.g., data protection and AI, con-sent as an ongoing process); we aligned our procedures with these updates and with social-science ethics guidance on consent, privacy, and vulnerable groups.

FINDING AND DISCUSSIONS

The transformation of the educational supervision system necessitates a shift in the role of school supervisors from mere performance evaluators to instructional companions who enact coaching-based facilitation across three core competency domains. This reorientation aligns supervision with the demands of decentralized governance and the digital turn in schooling, positioning facilitation as partnership, mentoring, and data-informed problem solving rather than bureaucratic inspection (Kuiper et al., 2024b; Rasdiana et al., 2024).

1) Social and Personality Competence. This domain reflects the facilitator's personal qualities empathy, integrity, clear communication, and the ability to cultivate positive professional relationships with principals and teachers thereby creating psychological safety for reflective dialogue and growth (Diller, 2023; Hallinger et al., 2025).
2) Professional Competence. This domain represents mastery of curriculum, pedagogy, and assessment, including deep disciplinary understanding that enables facilitators to translate

policy into feasible instructional design and to guide teachers' professional learning for improved student outcomes (Darling-Hammond et al., 2024; et al., 2024).

3) ICT Competence. This domain denotes the capacity to use and guide the purposeful adoption of digital technologies in teaching–learning processes covering online learning platforms, collaborative digital tools, analytics, and education data management together with ethical awareness about privacy, bias, and responsible AI (Abadi et al., 2025; Demissie et al., 2022b).

The central intersection of these three circles indicates the synergy required to perform the companion role effectively where humanistic communication, pedagogical expertise, and digital fluency reinforce one another to sustain teacher agency and continuous improvement (Ciarrochi et al., 2024; van Nieuwerburgh & Knight, 2023).

1. Synergy and Integration: The Intersections of Competence

The intersection of these three domains produces a holistic configuration of instructional coaching capacities. The **overlapping area** illustrated in Figure 1 represents the integrative strength where human connection, pedagogical depth, and digital fluency converge to generate adaptive facilitation.

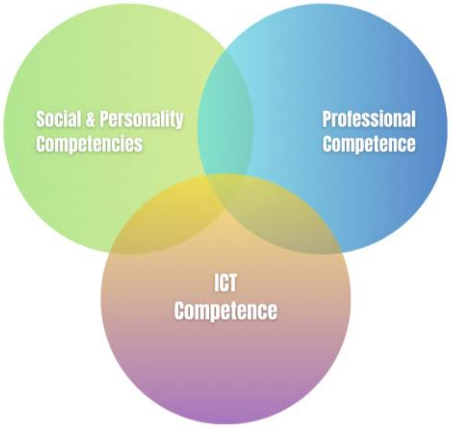

FIGURE 1. The Holistic Instructional Coaching

Within this intersection lie three hybrid subdomains that embody the dynamic interplay of skills required in the digital era:

a. Digital Instructional Leadership (ICT × Professional)

Digital Instructional Leadership (DIL) emerges from the integration of technological proficiency and pedagogical expertise. It encapsulates the ability to lead innovation in digital learning environments while aligning them with curriculum standards and assessment integrity. Facilitators demonstrating DIL often function as change agents organizing digital learning workshops, designing hybrid learning models, and mentoring teachers to evaluate digital resources critically. Schools led by such facilitators display higher teacher engagement and innovation (Nguyen & Gonzalez, 2020). In essence, DIL converts digital transformation from a policy mandate into a shared pedagogical movement. It ensures that technology supports not dictates educational change.

b. Digital Ethics & Communication (ICT × Social & Personality)

Digital Ethics and Communication (DEC) lies at the intersection of ICT and socio-personal competence. It represents the facilitator's ability to build ethical, transparent, and collaborative communication across both digital and physical environments. The study uncovered that teachers trust facilitators who uphold confidentiality and communicate respectfully in virtual spaces. Diller

(Diller, 2023) defines this practice as *digital empathy* he ability to convey authenticity despite the absence of physical presence. Fominykh (Fominykh & Prasolova-Forl, 2024) expand on this notion by proposing *digital care ethics*, emphasizing that equity and attentiveness must underlie every digital interaction. In practice, DEC fosters inclusion by ensuring that all teachers regardless of technological readiness feel respected and supported. It aligns the moral compass of facilitation with the evolving ethics of digital professionalism.

c. Transformational Coaching (Professional × Social & Personality)

At the intersection of professional and social competence lies Transformational Coaching (TC) a reflective process through which facilitators empower teachers to construct meaning, rather than receive instruction. In this study, teachers frequently described TC experiences as "conversations that awaken ideas." This resonates with Knight and van Nieuwerburgh (van Nieuwerburgh & Knight, 2023), who conceptualize coaching as the co-creation of insight through dialogue. Ciarrochi et al. (Ciarrochi et al., 2024) further demonstrate that transformational coaching enhances intrinsic motivation and professional resilience by nurturing psychological safety. TC redefines supervision as learning together, not teaching alone. It harmonizes analytical reasoning with empathy, bridging the cognitive and emotional dimensions of professional growth. In the Indonesian context, TC naturally aligns with musyawarah, a cultural ethos of deliberation and collective reflection. Making it culturally sustainable and pedagogically transformative.

2. Instructional Coaching Competencies (ICC): The Integrative Model

At the core nexus of the three intersections emerges the Instructional Coaching Competencies (ICC) a comprehensive, adaptive, and integrative framework for educational facilitation. This model transcends traditional supervisory functions by uniting *digital intelligence, pedagogical mastery, and human empathy* into one cohesive practice. Quantitative analysis reinforces this interdependence. Correlational results ($r = 0.68–0.79$, $p < .001$) and regression data (ICT $\beta = .42$; Professional $\beta = .33$; Social $\beta = .25$) confirm that facilitators who combine all three competencies are perceived as the most effective.

The ICC framework thus provides a blueprint for redefining educational leadership in the 21st century. It envisions supervision as a living ecosystem. One that evolves through reflection, ethics, and collaboration rather than through regulation and authority. As Rasdiana et al. (Rasdiana et al., 2024) and Field (Field et al., 2024) emphasize, sustaining educational quality amid digital disruption requires leaders who can think systemically, act empathetically, and adapt continuously. In summary, the ICC model offers an innovative response to the policy and pedagogical challenges of Indonesia's current education reform. It bridges the gap between structure and substance, ensuring that quality assurance becomes not an act of inspection, but a process of inspiration.

Instructional Coaching Competencies (ICC) framework as the most relevant model for current educational needs. The ICC model represents an adaptive, integrative, and holistic approach consisting of three interrelated dimensions: Digital Instructional Leadership, Digital Ethics and Communication, and Transformational Coaching. These dimensions redefine supervision as an act of facilitation and reflective partnership rather than bureaucratic inspection. The results hold substantial relevance beyond Indonesia, particularly for countries with decentralized education systems undergoing similar policy transitions. The model also provides practical guidance for school principals in strengthening leadership and professional competence in the digital era. So, we recommends the broader application of the ICC framework.

CONCLUSION

The findings of this study carry significant implications not only for Indonesia's educational supervision reform but also for other countries undergoing similar decentralised education transitions. The proposed Instructional Coaching Competencies (ICC) model—anchored in social, personal, professional, and ICT competencies—offers a universally adaptable framework for

transforming supervisory practices into facilitative, human-centered, and innovation-driven systems. Beyond its national relevance, the ICC framework provides a blueprint for reconstructing the professional identity of school supervisors worldwide. It guides them to evolve from evaluators into mentors, from inspectors into collaborators, and from policy executors into reflective learning partners. In this sense, the model also offers practical direction for school principals and educational leaders, serving as a competency map for digital-era leadership development and continuous professional learning.

The broader contribution of this study lies in demonstrating that the integration of empathy, pedagogical mas-tery, and digital fluency is not a cultural preference but a strategic necessity for education systems navigating trans-formation. The ICC model thus promotes a balanced approach combining ethical sensibility, intellectual depth, and technological adaptability to sustain quality assurance in complex and evolving contexts. Finally, the study recommends further empirical validation through quasi-experimental and longitudinal research to test the model's reliability and practical impact on teacher performance, school innovation, and learning outcomes. With confidence, we advocate that the ICC model be adopted and contextualized across diverse educational systems as a pathway toward professional empowerment, ethical digital transformation, and sustainable educational excellence.

REFERENCES

Abadi, M. N. P., Basrowi, R. W., Gunawan, W. Ben, Arasy, M. P., Nurjihan, F., Sundjaya, T., Pratiwi, D., Hardinsyah, H., Astuti Taslim, N., & Nurkolis, F. (2025). Unraveling Future Trends in Free School Lunch and Nutrition: Global Insights for Indonesia from Bibliometric Approach and Critical Review. *Nutrients*, *17*(17), 2777. https://doi.org/10.3390/nu17172777

Abdullaeva, B. S., Çakmak, F., & Abdullaev, D. (2024). Paper assessment or online assessment: exploring the impact of assessment modes on EFL students' language learning outcomes and personal development. *Language Testing in Asia*, *14*(1), 35. https://doi.org/10.1186/s40468-024-00309-w

Al-Kiyumi, A., & Hammad, W. (2020). Preparing Instructional Supervisors for Educational Change: Empirical Evidence From the Sultanate of Oman. *Sage Open*, *10*(2). https://doi.org/10.1177/2158244020935905

Bhatnagar, A., & Sharma, M. (2024). Artificial intelligence and consumer's perception: A research on environmentally conscious consumer. *Journal of Metaverse*. https://dergipark.org.tr/en/pub/jmv/issue/86280/1488022

Bluhm, D. J., Harman, W., Lee, T. W., & Mitchell, T. R. (2011). Qualitative Research in Management: A Decade of Progress. *Journal of Management Studies*, *48*(8), 1866–1891. https://doi.org/10.1111/j.1467-6486.2010.00972.x

Bringer, J. D., Johnston, L. H., & Brackenridge, C. H. (2006). Using Computer-Assisted Qualitative Data Analysis Software to Develop a Grounded Theory Project. *Field Methods*, *18*(3), 245–266. https://doi.org/10.1177/1525822X06287602

Ciarrochi, J., Hernández, C., Hill, D., Ong, C., Gloster, A. T., Levin, M. E., Yap, K., Fraser, M. I., Sahdra, B. K., Hofmann, S. G., & Hayes, S. C. (2024). Process-based therapy: A common ground for understanding and utilizing therapeutic practices. *Journal of Psychotherapy Integration*, *34*(3), 265–290. https://doi.org/10.1037/int0000348

Creswell, J.W. and Creswell, J. D. (2018). *Qualitative Quantitative, and Mixed Methods Approaches*. Sage.

D. Lewis, K., & DeSantis, J. (2024). Exploring The Role of Instructional Coaching in A Shifting Classroom Technology Landscape. *Journal of Interdisciplinary Teacher Leadership*, *8*(1), 1–29. https://doi.org/10.46767/kfp.2016-0051

D. Lewis, K., & DeSantis, J. (2024). Exploring The Role of Instructional Coaching in A Shifting Classroom Technology Landscape. *Journal of Interdisciplinary Teacher Leadership*, 1–29. https://doi.org/10.46767/kfp.2016-0051

Darling-Hammond, L., Schachner, A. C. W., Wojcikiewicz, S. K., & Flook, L. (2024). Educating teachers to enact the science of learning and development. *Applied Developmental Science*, *28*(1), 1–21. https://doi.org/10.1080/10888691.2022.2130506

Demissie, E. B., Labiso, T. O., & Thuo, M. W. (2022a). Teachers' digital competencies and technology integration in education: Insights from secondary schools in Wolaita Zone, Ethiopia. *Social Sciences & Humanities Open*, *6*(1), 100355. https://doi.org/10.1016/j.ssaho.2022.100355

Demissie, E. B., Labiso, T. O., & Thuo, M. W. (2022b). Teachers' digital competencies and technology integration in education: Insights from secondary schools in Wolaita Zone, Ethiopia. *Social Sciences & Humanities Open*, *6*(1), 100355. https://doi.org/10.1016/j.ssaho.2022.100355

Diller, J. (2023). Planning and Coordination for Unmanned Aerial Vehicles. *Proceedings of the 2023 International Conference on Autonomous Agents and Multiagent Systems*, 3017–3019.

Field, E., Berger, P., Lee, D., Strutt, C., & Nguyen, A. T. (2024). Knowledge, urgency and agency: reflections on climate change education course outcomes. *Environmental Education Research*, *30*(11), 2108–2130. https://doi.org/10.1080/13504622.2023.2296359

Fischman, G. E., & Gandin, L. A. (2016). The pedagogical and ethical legacy of a "successful" educational reform: The Citizen School Project. *International Review of Education*, *62*(1), 63–89. https://doi.org/10.1007/s11159-016-9542-0

Fominykh, M., & Prasolova-Forl, E. (2024). Supporting Career Guidance and Vocational Training in Fishery and Maritime Professions with Virtual Reality. *Practitioner Proceedings of the 10th International Conference of the Immersive Learning Research Network (ILRN2024)*, 69–71. https://doi.org/10.56198/5M1RH0QNF

Hallinger, P., Liu, S., Aung, P. N., & Yan, M. (2025). A systematic review of instructional leadership research conducted with the Principal Instructional Management Rating Scale (PIMRS), 1983–2024. *Educational Management Administration & Leadership*. https://doi.org/10.1177/17411432251358575

Hennink, M., & Kaiser, B. N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science & Medicine*, *292*, 114523. https://doi.org/10.1016/j.socscimed.2021.114523

Kuiper, S. T., Zweers, D., Suelmann, B. B. M., Meijer, R. P., & Vervoort, S. C. J. M. (2024a). Perspectives and Concerns on Late Effects Regarding Sexuality among Adolescents and Young Adults Treated for Testicular Germ Cell Tumor: The PRICELESS-Study—A Qualitative Study. *Cancers*, *16*(4), 715. https://doi.org/10.3390/cancers16040715

Kuiper, S. T., Zweers, D., Suelmann, B. B. M., Meijer, R. P., & Vervoort, S. C. J. M. (2024b). Perspectives and Concerns on Late Effects Regarding Sexuality among Adolescents and Young Adults Treated for Testicular Germ Cell Tumor: The PRICELESS-Study—A Qualitative Study. *Cancers*, *16*(4), 715. https://doi.org/10.3390/cancers16040715

Nguyen, T. N., & Gonzalez, C. (2020). Cognitive Machine Theory of Mind. *Proceedings for the 42nd Annual Meeting of the Cognitive Science Society: Developing a Mind: Learning in Humans, Animals, and Machines, CogSci 2020*, 2560–2566.

Omodan, B. I. (2025). The roles of epistemology and decoloniality in addressing power dynamics in university education. *Globalisation, Societies and Education*, *23*(5), 1226–1240. https://doi.org/10.1080/14767724.2024.2335661

P. Limna. (2023). The impact of NVivo in qualitative research: Perspectives from graduate students. *Journal of Applied Learning & Teaching*, *6*(2). https://doi.org/10.37074/jalt.2023.6.2.17

Pribadi, L. A., & Rahyasih, Y. (2021). *Problem Solving for Elementary School Students in Rural Areas in Online Learning Activities During New Normal Covid Conditions 19*. https://doi.org/10.2991/assehr.k.210212.007

Rahman, A., Raj, A., Tomy, P., & Hameed, M. S. (2024). A comprehensive bibliometric and content analysis of artificial intelligence in language learning: tracing between the years 2017 and 2023. *Artificial Intelligence Review*, *57*(4), 107. https://doi.org/10.1007/s10462-023-10643-9

Rasdiana, Wiyono, B. B., Imron, A., Rahma, L., Arifah, N., Azhari, R., Elfira, Sibula, I., & Maharmawan, M. A. (2024). Elevating Teachers' Professional Digital Competence: Synergies of Principals' Instructional E-Supervision, Technology Leadership and Digital Culture for Educational Excellence in Digital-Savvy Era. *Education Sciences*, *14*(3), 266. https://doi.org/10.3390/educsci14030266

Ruhimat, M. D. C., Rahyasih, Y., Gorni, R. L., & Shodikin, R. (2024). Supporting Transformation of Indonesian Higher Education Quality Assurance: The Advanced Socialization of Merdeka Belajar Policy 26th Chapter. *Jurnal Ilmu Pendidikan*, *30*(2), 127. https://doi.org/10.17977/um048v30i2p127-139

Skamagki, G., King, A., Carpenter, C., & Wåhlin, C. (2024). The concept of integration in mixed methods research: a step-by-step guide using an example study in physiotherapy. *Physiotherapy Theory and Practice*, *40*(2), 197–204. https://doi.org/10.1080/09593985.2022.2120375

Sulastri, D. (2024). pengembangan Bahan Ajar Buku Saku Digital Model Addie Materi Peristiwa Kebangsaan Masa Penjajahan Indonesia. *Jurnal Holistika*, *7*(2), 178. https://doi.org/10.24853/holistika.7.2.178-185

van Nieuwerburgh, C., & Knight, J. (2023). Positive health coaching: Adopting a dialogical approach to health and wellbeing. In *Routledge International Handbook of Positive Health Sciences* (pp. 220–236). Routledge.