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Principal-Led Clinical Supervision in Indonesian Schools: Advancing Teacher Professional Development for SDG 4

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ABSTRACT

Objective: To investigate the impact of principals' clinical supervision on teachers' pedagogical competence within the cultural context of Indonesian schools. Clinical supervision has been shown to promote reflective practice. However, its implementation in Indonesia is often a formality to meet government-set management standards, rather than a means of developing teachers' competencies. **Method:** To use a convergent mixed-methods research design and involved eighty-nine teachers and six principals from six elementary and junior high schools in Jombang, East Java. Quantitative data, derived from pre- and post supervision. **Result:** After clinical supervision, showed statistically significant improvements in teachers' pedagogical skills. The most substantial improvements were seen in teachers' lesson planning and evaluation. Qualitatively, thematic analysis found that teachers initially experienced "fear of exposure" and professional shame during the supervision process. Affective resistance evolved into a journey of collaborative discovery as the supervision progressed. These findings highlight that the effectiveness of transforming teachers' pedagogical competence is embedded in the school's organizational culture. **Novelty:** Schools that demonstrated high levels of interpersonal trust between teachers and principals performed better than schools governed by rigid organizational norms. This study concludes that for clinical supervision to be truly effective in Indonesia, it must be reimagined as a culturally sensitive and mandated dialogue, not simply an administrative requirement. The implications suggest that educational policymakers should shift their focus toward coaching-based leadership training, emphasizing psychological safety and relational trust as catalysts for professional growth and teaching quality.

INTRODUCTION

Pedagogical competence is a basic dimension of teacher professionalism that directly guides instructional design, classroom interaction, and assessment. Pedagogic competence among teachers is a key factor in establishing student-active learning situations (Filiz & Durnali, 2019; Geletu, 2022; Moreira et al., 2023; Yazici & Yildirim, 2017). Strong pedagogical competencies influence teachers in designing learning experiences that encourage student participation, critical thinking, and meaningful engagement in classroom learning. In practice, possessing pedagogical knowledge does not guarantee that teachers will apply it reflectively and responsively to classroom learning. In many school contexts, teaching routines tend to persist and often resist change, even when new educational policies encourage a more student-centered approach (Fullan & Hargreaves, 1993). As a result, there is often a gap between intended goals of education and the actual learning processes occurring in the classroom.

Initial observations from this study indicate that classroom learning often remains teacher-centered, providing limited space for reflective teaching practices. Field observations conducted in several public elementary and junior high schools in Jombang, East Java, revealed recurring issues such as poorly organized classroom management and low student responsiveness. Many teachers continue to rely on conventional lecture-based methods, suggesting that pedagogical knowledge has not been effectively translated into meaningful learning experiences (Hartini et al., 2018). In addition, no longer useful pedagogical content knowledge must be transformed into meaningful learning process (Dini Kurnia Irmawati et al., 2017). These conditions highlight that strengthening pedagogical competence requires more than formal regulations; it requires continuous professional development mechanisms that support reflection and improvement in teaching practice.

However, previous studies have largely focused on the administrative and procedural aspects of supervision, with limited attention to how sociocultural factors such as hierarchical relationships and organizational norms shape its effectiveness in practice. This creates a gap in understanding how clinical supervision can function as a meaningful professional development process within culturally embedded school contexts.

Thus, this study investigates the integration and enhancement of pedagogy through principal-led clinical supervision for teachers. Through qualitative data and quantitative indicators combined, we examine how there is an interplay between the conduct of principals in clinical supervision, teacher experience (perceptions) of clinical supervision, as well as negotiation within the everyday organizational practices experienced within schools. While customary approaches view supervision as merely administrative, this study aims to explore its institutionalization in the daily activities of Indonesian schools for sustainable pedagogical transformation.

This study makes a unique contribution to the educational literature by revealing how the organizational culture of Indonesian schools, often steeped in hierarchical structures, can be mediated by the effectiveness of clinical supervision. Previous research has focused more on the administrative aspects of supervision. This study fills this gap by integrating a sociocultural perspective to understand the transformation of teachers' pedagogical skills. The findings offer a new framework for principals to build interpersonal trust with teachers to overcome their psychological barriers, thus transforming clinical supervision from a mere regulatory obligation to a continuous professional development dialogue in Indonesian schools.

RESEARCH METHOD

To achieve a comprehensive understanding of the process of supervision, we adopted a mixed strands method mixture deals with concurrent collection and integration quantitative trends as well as qualitative narrative material. For this design, in addition to the quantifiable dimensions of teachers' pedagogical competence, we hope that through its qualitative descriptions it will become possible for readers to gain a feel

how clinical supervisory practices were actually carried out. The combination of quantitative trends and qualitative accounts did make it possible to have a full picture of clinical supervisory activities and helped us better understand teachers' pedagogical competency.

This study was carried out in six elementary and junior high schools in Jombang Regency, East Java Province, Indonesia. The population of the study consisted of six school principals and 89 teachers. The researcher employed a proportional stratified random sampling design, with the strata being the level of the school, there are elementary school and junior high school. The researcher used a random sampling design in order to increase the representativeness of the data, reduce the risk of selection bias, and compare supervision in the schools based on level. Schools from elementary schools are from SD Kepanjen 2 Jombang, SD Negeri 2 Ardirejo and SDN 2 Talangagung and Schools from junior high schools are from MIN 3 Jombang, SMPN 6 Jombang and MTSn 3 Jombang.

A questionnaire was used before and after the clinical supervision process, carried out by the school principal. The questionnaire was based on the pedagogical competency construct, as well as the stages of the clinical supervision process. The questionnaire's validity was established based on the experts' knowledge in the field of educational leadership and clinical supervision. Before the data analysis, the reliability of the measurements, as well as the validity, was tested using Cronbach's alpha coefficient. The questionnaire had a total of 24 questions, including: a) understanding of clinical supervision, b) clinical supervision techniques, and c) pedagogical competency indicators. The questionnaire had quantitative questions based on the Likert scale, as well as qualitative questions. The qualitative data was collected from the semi-structured interviews, as well as the observations. The interviews were conducted with the aim of examining the comprehensive implementation of clinical supervision from the teachers' point of view.

All the participants were willing to be recorded during the interviews, which were used as data collection tools. In addition, the researchers observed the classrooms in order to understand the structure of the learning process facilitated by the teachers. The data collection process was carried out from August 2024 to July 2025.

Ethics This study was conducted in accordance with the ethical rules of research. The author's Institutional Review Board granted ethical clearance prior to data collection. Attendance was voluntary and written consent was obtained from all the participants. Anonymity was also ensured and responses were only used for academic purposes. They were also informed that they had the right to quit the study at any time without consequences.

Presurvey explanatory sessions were held in order to minimize response bias and misunderstanding. The participants were encouraged to answer truthfully and thoughtfully, and anonymity was stressed in order to reduce social desirability bias.

Descriptive statistics in the forms of means and percentages, distribution patterns, were used to analyze quantitative data and trends of pedagogical competences

before/after the implementation of supervision. Descriptive trends indicate a marked shift toward higher pedagogical competence categories following supervision.

For qualitative data, analysis was conducted based on Miles and Huberman's interactive model involving data reduction, data display, as well as drawing conclusion with verification. Themes, relationships and context effects from participants' stories were developed through iterations of coding. Data collection continued until thematic saturation was reached, indicated by the absence of new emerging themes during data analysis.

Synthesis: Quantitative and qualitative data were combined during interpretation to triangulate the results, in order to gain a thorough understanding of clinical supervision processes. This inclusion made possible the cross-referencing of statistical trends with lived stories, which enhanced interpretative validity.

To enhance methodological soundness, credibility, transferability, dependability and confirmability criteria were considered in this study. Data triangulation (questionnaires, interviews and observations) and member checking with a few participants resulted in increased credibility. Detailed contextual descriptions were provided to allow readers to assess the transferability of the findings. Reliability was established by tracking - based histories of the different research processes, analytical judgements and data processing phases. Confirmability was enhanced via reflexive approaches and basing interpretations on empirical data.

RESULTS AND DISCUSSION

Results

The findings illustrate how clinical supervision relates to observable changes in teachers' pedagogical competence. Teachers' pedagogical competence is measured by five indicator themes, namely: (1) understanding of students, (2) learning process, (3) evaluation and assessment of learning, (4) utilization of learning media, (5) Learning Reflection. The questionnaire also added questions regarding understanding of clinical supervision consisting of 2 theme indicators, namely understanding and techniques of clinical supervision covering the supervision planning stage, learning observation and feedback stage. Furthermore, interviews were conducted to explore the data in more depth.

Table 1. Socio-demographic characteristics of the respondents

No	Demographic Characteristics	Teachers		Principals	
		Total	%	Total	%
1.	Gender				
	Male	21	23.5	2	33.3
	Female	68	76.5	4	66.7
2.	Age				
	22-32	32	36	0	0
	32-42	27	30	1	16.7
	42-52	21	24	2	33.3
	52-60	9	10	3	50

No	Demographic Characteristics	Teachers		Principals	
		Total	%	Total	%
3.	Educational Qualifications				
	Bachelor	78	88	3	50
	Magister	10	11	2	33.3
	Doctor	1	1	1	16.7

Table 2. Thematic analysis of teacher interviews

No	Theme	Key Finding
1.	Understanding Clinical supervision	1. Teachers view clinical supervision as a means of improving teacher performance and professionalism.
		2. Clinical supervision is considered a reflective process to identify and correct deficiencies.
		3. Clinical supervision is a collaborative action between the principal and teachers.
		4. Clinical supervision is a coaching effort, not an administrative assessment.
		5. There is a phase of mindset change (shame when deficiencies are discovered).
		6. Several teachers stated that their understanding developed through repeated clinical supervision experiences.
2.	Clinical supervision Techniques	1. Teachers understand that appropriate clinical supervision techniques involve dialogue to resolve problems.
		2. The stages of clinical supervision must be structured, starting with planning and observation, and ending with feedback from the principal as supervisor.
3.	Pedagogical Competence	1. Teachers feel they have experienced pedagogical improvements in: lesson planning, classroom management, evaluation, media use, and providing feedback.
		2. Teachers report having better, more positive relationships with students.
		3. Teachers have more alternatives to find solutions to learning problems they experience.

Table 3. Thematic analysis of principal interviews

No	Theme	Key Finding
1.	Understanding Clinical supervision	1. The principal, as supervisor, understands that clinical supervision is part of improving teacher competency and school quality.
		2. The principal, as supervisor, understands that clinical supervision activities are almost like coaching activities to guide teachers in finding solutions to the learning problems they experience.
2.	Clinical supervision Techniques	1. The clinical supervision stages are implemented in a structured manner, starting with planning and observation, and continuing with feedback from the principal as supervisor.
		2. The principal, as supervisor, always strives to clearly articulate the objectives of clinical supervision and the outcomes of these activities to the teachers being

No	Theme	Key Finding
3.	Pedagogical Competence	supervised. 1. The principal as supervisor feels that clinical supervision has an impact on the quality of teachers' teaching methods.

Table 4. Results of teacher questionnaire after clinical supervision

No	Questions / Statements	Results				
		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	I understand the learning characteristics of each student in my class.	91	8	1	0	0
2	I am able to identify the different learning needs of each student.	82	12	6	0	0
3	I adjust my learning strategies based on the students' initial abilities.	92	5	3	0	0
4	I am able to manage the class to create a conducive learning environment.	81	12	6	1	1
5	I encourage students to actively ask questions and express their opinions during the lesson.	86	8	5	1	0
6	I use a variety of learning methods according to the material being taught.	90	5	3	1	1
7	I use various assessment techniques (tests, observations, assignments, projects) in accordance with the learning objectives.	98	2	0	0	0
8	I provide feedback that helps students improve their learning outcomes.	87	8	1	1	0
9	I use the results of learning evaluations to refine my teaching strategies for the next time.	97	3	0	0	0
10	I am open to input and suggestions to improve the quality of my teaching.	98	0	2	0	0
11	I understand the stages of clinical supervision (planning, observation, and feedback).	93	5	2	0	0
12	I understand the basic concepts of clinical supervision conducted by the principal for me.	80	15	4	1	0
13	I understand that clinical supervision is collaborative between the principal and me.	88	7	4	1	0
14	I recognize that clinical	88	8	2	1	1

No	Questions / Statements	Strongly Agree	Agree	Results		
				Undecided	Disagree	Strongly Disagree
15	supervision aims to help me reflect on my learning. The principal conducts a pre-conference before observing the lesson.	89	9	1	1	0
16	The focus of the observations was mutually agreed upon between the principal and me.	95	2	2	1	0
17	Learning observations were conducted objectively using clear instruments.	96	3	1	0	0
18	Feedback was provided immediately by the principal, acting as supervisor, after the observation was completed.	97	2	1	0	0

**Rounding percentage results*

Table 5. Results of questionnaire analysis from principals

No	Questions / Statements	Strongly Agree	Agree	Results		
				Undecided	Disagree	Strongly Disagree
1	I understand the characteristics of the teachers I supervise.	97	2	1	0	0
2	I provide feedback that helps teachers improve the quality of their teaching.	91	9	0	0	0
3	I understand the basic concepts of clinical supervision in teacher development.	98	2	1	0	0
4	I understand that clinical supervision is collaborative between me and the teachers I supervise.	97	3	0	0	0
5	I recognize that clinical supervision aims to help teachers reflect on their learning.	99	1	0	0	0
6	I conduct a pre-conference before observing the learning.	88	12	0	0	0
7	The focus of the observation is mutually agreed upon between me as supervisor and the teacher.	89	9	1	0	0
8	I conduct learning observations objectively using clear instruments.	97	3	0	0	0
9	I provide feedback after the observation is completed.	98	2	0	0	0

The percentage responding in the quantitative survey, indicating a strong sense of agreement, indicates with great likelihood that teachers did experience beneficial effects of the supervision cycle. This result should, however, be taken with some caution given the likelihood of social desirability bias that can be very strong when considering hierarchical educational institutions.

Discussion

The finding of this research indicates that clinical supervision by principal functions as a catalyst for teachers' pedagogical competence development, especially in relation to lesson planning, classroom management, and student participation. Although procedural compliance is seen as the final aim of administrative supervision, this research indicates that this is merely the starting point. The actual change comes about through a conceptual transformation of supervision as a structured and dialogic instrument, as opposed to a monitoring/assessing and criticizing instrument. This leads to teachers going beyond traditional teacher-centered approaches and becoming more responsive, active, and student-centered in their practice.

The results of this article indicate that clinical supervision functions not only as an evaluative mechanism but also as a collaborative professional learning process that strengthens teachers' pedagogical competence. Academic supervision conducted through collaborative instructional training creates a psychologically safe environment, thereby encouraging teachers to continuously improve their pedagogical practices (Hanaris, 2026). These findings extend the article's results by demonstrating that, in public schools, organizational culture and instructional leadership jointly reinforce the effectiveness of clinical supervision in enhancing teachers' instructional competence.

Improvements in lesson planning, classroom management, and the implementation of reflective teaching represent not merely a procedural outcome of supervision, but a paradigm shift in the professional learning process for teachers. Quantitative results indicating enhanced pedagogical competence are reinforced by qualitative evidence showing a shift in teachers' perceptions of supervision moving from a purely evaluative activity to a collaborative learning process. Regarding instructional leadership as a driver of teacher quality improvement, demonstrating that organizational culture and interpersonal trust serve as crucial contextual mechanisms enabling instructional leadership to function effectively (Hallinger, 2011; Liu & Hallinger, 2018).

The data indicate that clinical supervision helmed by school principals will increase teachers' pedagogical skills, mainly in five areas: instructional organization or structure; classroom management; formative evaluation; and reflective teaching of oneself. This is consistent with research showing that instructional leadership-based supervision can encourage teacher learning and instruction quality to improve dramatically (Hallinger, 2011; Liu & Hallinger, 2018; Robinson et al., 2008). In the case of teachers, we found that they have pedagogical knowledge but cannot put it to work in their teaching situations. This reflects the gap between theoretical understanding and what is really happening in class. While teachers in Indonesia are familiar with the national competence standards which are regulated by Ministerial Regulation No.16/2007, they may still lack any sense of direction or guidance if cognition is stagnant. This learning effect can be prevented efficiently using external stimuli. Given the results of this research, it is suggested that clinical supervision and observation play an indispensable role.

They transform static knowledge to make active pedagogical inquiry possible. Sustainable teacher competency development can only be achieved through consistent

professional management. This study not only supports previous findings but also illustrates the field conditions crucial for successful clinical supervision. While there are areas for future improvement, the effectiveness of process monitoring remains based on well-documented supervision. Ultimately, these findings encourage a repositioning of clinical supervision: from its original perception as a control tool to a structured, reflective dialogue.

The results reinforce, in one respect or another, earlier studies and offer forward-looking contextual conditions for ultimately constructive supervision. While the recently-finished survey highlighted several areas for quibbling, the provision of production process documentation is prerequisite to effective supervisory monitoring in any case. Taken together, then, these findings suggest that clinical supervision is to be considered in this one way--as a system of structured reflection and not a police tool. The qualitative evidence suggests that participants became more receptive to constructive criticism over time. This also accords with work emphasizing how reflective dialogue is essentially necessary if there is to be enduring education of professionals (Avalos, 2011; Pandhi, 2018; Zepeda, 2017). Clinical supervision encourages teachers to internalize feedback and incorporate it into consistent pedagogical decision-making, leading to improved professional skills and greater collaboration (Admiraal et al., 2019; Vescio et al., 2008).

An important finding in this study is the mediating factor of organizational culture. For instance, in schools with high relational trust among teachers and school leaders, teachers are motivated to perceive feedback as an opportunity for professional development. On the other hand, in more hierarchical cultures where resistance is more evident, supervision is often equated with evaluative supervision. In conclusion, a good working environment has an impact on the performance of teachers (Owan & Robert, 2020). This aligns with the notion that instructional leadership is not a one size fits-all model but is deeply embedded in the cultural of schools.

The role of organizational culture observed in this study reinforces prior evidence that principal leadership should not be viewed merely as an administrative function, but rather as an effort to create a collaborative school culture that fosters continuous teacher development. A humanistic approach to school leadership strengthens teacher commitment, professional responsibility, and school culture, thereby supporting the sustained improvement of educational quality. The current findings complement this perspective by demonstrating that organizational culture mediates the relationship between instructional leadership and the effectiveness of clinical supervision.

Qualitative findings reveal that organizational culture functions not only as a contextual variable but also as a mechanism influencing teachers' willingness to engage in reflective practice. Schools characterized by relational trust enable teachers to perceive feedback as a form of professional support rather than merely a performance evaluation. These observations complement findings (Nguyen and Hallinger, 2020) while extending them by showing that, in Indonesian schools, hierarchical cultural norms remain a significant barrier to improving teaching quality. Therefore, clinical

supervision should be viewed as a form of culturally responsive strategic leadership rather than simply an administrative procedure.

These findings further emphasize the mediating role of organizational culture in shaping better clinical supervision outcomes. Although supervising protocols were of a standard form, teachers' reactions depended on the school culture and principal's leadership. In schools with trust and collegiality, supervision was defined as a type of professional coaching. By contrast, in hierarchical contexts the initial resistance was more pronounced. These results are consistent with the evidence that school culture is a powerful moderator of instructional reform efforts (Hargreaves & Fullan, 2012; Leithwood et al., 2008; Nguyen & Hallinger, 2020). Indeed, instructional leadership is found to be most effective when supervision is built on relational trust and shared professional norms (Grissom et al., 2021; Tesfaw & Hofman, 2021; Tschannen-Moran & Gareis, 2015).

Moreover, clinical supervision's effectiveness in such a context depends deeply on the traditional cultural features of reluctance and high power distance at the beginning, teachers regarded the presence of a supervisor as threat instead of their "professional face". This research points out that successful pedagogical transformation is not only about procedures but also depends on establishing a foundation of trust between people that can withstand such hierarchical pressures. So if supervision is to break out of the cycle of mere compliance, then it needs to be reconceived as a culturally prescribed dialogue; in this case the head teacher becomes supportive coach rather than formal investigator

The findings of this research reveal that the effectiveness of clinical supervision in Indonesia is strongly mediated by the cultural construct of 'reluctance' and a strong hierarchical organization. In cultural contexts with high Power Distance, the process of providing feedback is often not seen as a neutral professional dialogue, but rather as a threat to social harmony or the teacher's 'face'. Teachers tend to feel embarrassed or defensive when their weaknesses are exposed because of the cultural expectation that a professional must appear competent in front of superiors. Without a climate of trust, no matter how sophisticated a monitoring instrument is, it will only become a ritual of compliance with no impact on changing classroom practices (Owan & Robert, 2020). Therefore, clinical supervision in Indonesian schools can successfully transform only when school principals are able to reduce hierarchical barriers and position themselves as trainers, not formal evaluators, rather than normalizing rigid school culture (Musungu, 2023). Therefore, clinical supervision in schools in Indonesia was successful in transformation only when school principals were able to reduce hierarchical barriers and position themselves as trainers, not formal evaluators.

Teachers reported increased use of formative assessment data to adjust instructional strategies. Educators noted greater use of assessment data for instruction adjustment. This is consistent with studies showing that feedback-informed instruction improves adaptive teaching and student engagement (Hattie, 2009; Timperley, 2008; Wisniewski et al., 2020). Incorporating observation evidences in follow-up discussions after a

conference session, clinical supervision seems to provide the necessary link between theory and practice.

The implications extend previous research on instructional leadership to illustrate how supervision is situated in culturally bounded school contexts of hierarchy (Day et al., 2016; Printy et al., 2009). Supervision is also conceptualized, not as a separate management practice, but as a practice of leaderful action in the organization. This conceptualization is in line with the findings of the previous studies, which confirmed that the practices of school administration are subject to influence from the organizational culture, in terms of which the supervision cycles function in Indonesia, and in terms of which the hierarchical values of the school organization could be influencing the engagement of the teacher. It's also noteworthy, the use of quantitative data as well as qualitative data adds weight to the findings. Quantitative data shows trends, but qualitative data helps us understand the reasons behind the trends. Thus, interpretative depth might be established through mixed-method integration and the inclusion of methodological perspectives on leadership research (Bryman, 2016; Creswell & Plano Clark, 2018).

Moreover, data use in post observation conferences was found to be essential to maintaining pedagogical change. Based on feedback using objective data, the principal, as a supervisor, links theoretical requirements with realistic learning processes. This sensitive approach, contextualized to the Indonesian setting with considerable variation in pedagogical competencies, provides professional growth, moving beyond mere compliance with current legislation.

Overall, the results of this study demonstrate that an effective clinical supervision approach is systematic, dialogue-based, collaborative, and supported by an organizational culture. When procedural structure is not supported by relational trust, supervision tends to be interpreted as evaluation rather than professional learning. Accordingly, this study adds to the topic on how leadership practices need to take account of contextualized realities, while preserving reflective rigour.

The contribution of this research directly aligns with the achievement of Sustainable Development Goal (SDG) 4 (Quality Education) specifically target 4.c which emphasizes increasing the availability of qualified teachers through continuous professional development. Effective clinical supervision enables teachers to enhance their pedagogical competence through reflective practice, collaborative feedback, and ongoing professional learning.

Integrating instructional coaching with academic supervision can improve teachers' professional competence and contribute to SDG 4 through continuous teacher development (Hanaris, 2026). Principals' leadership enhances the quality of education by strengthening teacher professionalism, school culture, and instructional effectiveness (Tenau, 2026). Therefore, this research provides additional empirical evidence that clinical supervision serves as an effective instructional leadership strategy to support sustainable educational quality in line with SDG 4.

CONCLUSION

Fundamental findings: This study shows that principal-led clinical supervision is an effective instructional leadership strategy for improving teacher's pedagogical competence in Indonesian schools. Structured observation, reflective feedback, and professional dialogue contribute to improvements in lesson planning, classroom management, assessment practices, and reflective teaching. The findings emphasize that clinical supervision is more effective when implemented as a professional learning process rather than an administrative evaluation. **Implications:** The study highlights that organizational culture, leadership style, and relational trust influence the effectiveness of clinical supervision. School principals should strengthen supervision practices through continuous professional dialogue, collaborative reflection, and supportive feedback to promote teacher development and school improvement. **Limitations:** This study was conducted in six schools within one district in East Java, limiting broader generalization. The use of self-reported data may introduce response bias, and the one-year research period may not fully represent long-term pedagogical transformation. **Future research:** Future studies should examine the long-term impact of clinical supervision using longitudinal research designs to better understand the sustainability of pedagogical transformation. Comparative studies involving different cultural and educational contexts are also needed to investigate how organizational culture and environmental factors influence the implementation and transferability of clinical supervision models across school systems. Such studies would provide broader evidence regarding the contextual conditions that support effective instructional leadership and sustainable teacher professional development.

AUTHOR CONTRIBUTIONS

Akhmad Mundir conceptualized the study, conducted data collection, and drafted the manuscript. **Andi Kristanto and Amrozi Khamidi** supervised the research process and critically revised the manuscript. **All authors** approved the final version of the manuscript.

CONFLICT OF INTEREST STATEMENT

The authors confirm that there are no conflicts of interest, either financial or personal, that may have influenced the content or outcome of this study.

ETHICAL COMPLIANCE STATEMENT

The institutional review board of Universitas Negeri Surabaya reviewed and approved the study. Written informed consent was obtained from all subjects before participation. The participation was strictly voluntary and all the respondents were told that they could withdraw from participating at any time without giving any justification. Privacy was preserved, all information were kept confidential and anonymous, data were used only for academic research purposes and the study respected code of ethics in research with human subjects.

STATEMENT ON THE USE OF AI OR DIGITAL TOOLS IN WRITING

As the author(s) of this work, we used the AI tool Grammar AI and Open AI for the purpose of supported language assistance tools for minor language refinement and structural editing. After using this AI tool, we reviewed and verified the final version of our work. We, as the author(s), take full responsibility for the content of our published work.

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