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Technology Utilization and Its Influence on Effective Instructional Supervision among School Heads in Ligao City

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Abstract

This study determined the extent of technology utilization and its influence on effective instructional supervision among school heads in the Schools Division of Ligao City during School Year 2025–2026. It was anchored on Instructional Leadership Theory, Transformational Leadership Theory, the Clinical Supervision Model, and the researcher-developed Catalytic Instructional Supervision Theory. The study employed a descriptive-quantitative research design using a researcher-made questionnaire administered to 55 school heads and 133 teachers, with a total of 188 respondents. Data were analyzed using frequency count, ranking, percentage, weighted mean, chi-square test, and Kruskal-Wallis H Test. Findings showed that school heads very much utilized technological tools in instructional supervision, with an overall weighted mean of 4.35. The most utilized tools included Zoom and Google Meet for virtual walkthroughs, Google Forms and related applications for digital observation, and email or messaging applications for post-conference feedback. Technology also had a very great influence on supervisory performance, with an overall weighted mean of 4.26, particularly in scheduling, data retrieval, professional development diagnosis, documentation, and feedback. The Kruskal-Wallis result showed a significant difference between the perceptions of teachers and school heads, leading to the rejection of the null hypothesis. Based on the findings, an instructional supervisory guide integrating technology was developed, focusing on less-utilized tools such as cloud-based storage, Google Calendar, Loom, Canva, and Padlet. The study supports SDG 4 on Quality Education, SDG 9 on Industry, Innovation and Infrastructure, SDG 16 on Strong Institutions, and SDG 17 on Partnerships for the Goals. Its sustainability impact lies in strengthening educational leadership, institutional supervision, technology-supported governance, and continuous professional development in public elementary schools.

Keywords: Clinical Supervision, Digital Tools, Instructional Leadership, Instructional Supervision, School Heads, Teacher Development, Technology Utilization

1. Introduction

This study examines technology utilization and its influence on effective instructional supervision among school heads in the Schools Division of Ligao City during School Year 2025–2026. It is grounded in the view that education remains a major instrument for national progress, and that school heads play a crucial role as instructional leaders who guide teachers, monitor classroom practices, and support teaching and learning improvement. As supervision shifts from traditional classroom visits, handwritten reports, and paper-based feedback to digital platforms, mobile applications, and online tools, school heads are increasingly expected to use technology to make supervision more efficient, transparent, timely, and responsive. The study therefore focuses on how school heads utilize technological tools in instructional supervision, how these tools influence their performance, and what instructional supervisory guide may be developed from the findings.

Instructional supervision is a central function of school leadership because it enables school heads to observe instruction, provide feedback, support teachers' professional growth, and ensure that learning remains meaningful. In public elementary schools, this role is particularly important because school heads are expected to balance administrative responsibilities with instructional leadership. Traditionally, supervision relied on face-to-face classroom observation, manual reports, and paper-based feedback mechanisms. However, the increasing availability of digital platforms, mobile applications, online communication tools, and electronic record-keeping systems has changed how supervision may be conducted. The need to integrate technology in supervision is supported by Philippine education policies. Republic Act No. 9155, or the Governance of Basic Education Act of 2001, identifies school heads as instructional leaders responsible for creating an environment conducive to teaching and learning. DepEd Order No. 24, s. 2020 institutionalized the Philippine Professional Standards for School Heads, emphasizing mentoring, technical assistance, and clinical supervision. DepEd Memorandum No. 082, s. 2020 supports professional development through the National Educators Academy of the Philippines, while DepEd Order No. 35, s. 2016 institutionalized Learning Action Cells as collaborative venues for continuous teacher development. Likewise, DepEd Order No.016 s.2023 supports the DepEd Computerization Program, which aims to provide schools with equitable technology to improve teaching-learning conditions. In Ligao City Division, the adoption of

technology in instructional supervision appears uneven. Some school heads use mobile applications, online platforms, and digital record-keeping systems confidently, while others encounter limitations in skills, resources, and technical support. These differences may affect the timeliness of feedback, quality of mentoring, record management, and overall supervisory effectiveness. Scholars such as Agumen (2023) and organizations like the Research & Scientific Innovation Society (2026) emphasized that supervision is not limited to teacher evaluation but also includes professional growth through classroom observation, mentoring, and coaching.

The reviewed literature consistently presents instructional supervision as a major mechanism for improving teaching quality, professional development, and student learning. Dignath and Veenman (2020) explained that classroom observation may be conducted through traditional methods or digital tools and remains important in documenting what occurs inside the classroom. A World Bank Group report also emphasized the importance of observing how teachers use instructional time, materials, pedagogical approaches, and strategies to sustain learners' attention (Beteille & David, 2021). The idea that the quality of an education system depends significantly on the quality of its teachers is also emphasized in classroom observation research (Campbell et al. 2022). School heads are expected to create strategies that improve student performance because they are leaders of instruction (Mora-Ruano et al., 2021). Principal leadership has also been found to indirectly affect student achievement through teachers (Wu, 2020). Thus, instructional leadership and teacher collaboration are important elements of effective schools, and professional learning communities provide opportunities for school heads and teachers to grow in a collaborative environment. This reinforces the idea that principals are leaders of instruction who must improve supervision while maintaining their managerial functions (Darling-Hammond et al. 2022). Several studies further support the connection between school leadership, supervision, feedback, and teacher development. Alsaleh (2022) found that school-based professional learning was significantly related to collegial cooperation, instructional leadership, and administrative support. Dwayne et al. (2023) emphasized the value of diverse supervision teams that provide formative feedback and promote self-reflection. Sindhvad (2022) highlighted the importance of principals' self-efficacy in performing supervision, mentoring, and training, while Bradmo et al. (2021) found that feedback-based leadership and relational trust are related to job autonomy, role clarity, and instructional leadership self-efficacy.

Local literature also supports the value of structured supervision and classroom observation. Republic Act 10533, or the K–12 Law, recognizes classroom monitoring as an indicator of quality instruction, while feedback provides evidence of teacher performance, strengths, and areas for growth (Riego de Dios, 2020). The Philippine Professional Standards for Teachers also establishes clear expectations for professional development and teacher performance (Bugtong, 2020). Suparto (2020) stated that classroom observation combined with academic supervision can improve teacher learning, while Tawalbeh (2020) noted that supervision includes pre-observation planning, observation, and post-observation monitoring. Instructional supervision is repeatedly described as necessary for educational improvement. Agumen (2022) emphasized that instructional supervision helps educators and administrators perform better and promotes uniformity and effectiveness in teaching. Galabon (2025) showed that supervision supports newly hired teachers through self-reflection, behavior management, lesson planning, technical assistance, and support systems. Baggay et al. (2021) found that classroom observation, portfolio supervision, and identification of teacher strengths and limitations were related to teacher job satisfaction. Similarly, Caguite and Ching (2020) recommended that school heads continue improving instruction through supportive supervision, workshops, seminars, conferences, professional journals, and in-service education. The studies reviewed further show that instructional leadership affects teacher motivation, professional practice, and performance. Granstorm et al. (2023) found that teachers often use indirect instruction more than direct teaching of learning strategies, suggesting the need for practical training. McBryer et al. (2020) found that supervising and evaluating instruction and monitoring student progress predicted leadership self-efficacy. Demirdag (2021) found significant relationships between instructional leadership and teacher motivation. Clark (2020) emphasized that leadership style influences teacher performance, while Bellibas (2022) showed that principals' classroom observation feedback was directly and indirectly related to instructional practice through teacher self-efficacy. Other studies point to teacher autonomy, feedback, observation tools, and professional development as important aspects of supervision. Worth and Van den Brande (2020) emphasized that school administrators should promote teacher autonomy and participation in decision-making. Tarusha and Bushi (2024) found that standardized classroom observation tools guide teachers in assessing performance and planning improvement. Benton (2019) recommended improving feedback-giving practices through leadership characteristics, active supervision, and content knowledge. Deniz and Erdener (2020) found that instructional supervision by school principals occurred at low frequency and recommended more meaningful feedback processes. Ampofo et al. (2020) found that lesson planning supervision and lesson delivery supervision significantly influenced teacher role performance. Philippine studies also support the relevance of classroom observation and supervision. Caratiquit & Pablo (2021) found that teachers viewed classroom observation as a tool for assessing professional goals and improving teaching practices in the new normal. Barrogo (2020) concluded that standardized classroom observation tools enhance teacher preparation and competency. Villamor (2021) identified overlapping schedules as a major problem in classroom observation practices. Aureada (2021) found that school heads performed several instructional leadership functions but needed stronger monitoring and evaluation. Garcia (2021) emphasized the importance of teacher empowerment, while Aquino et al. (2021) found that leadership practices significantly affected school heads and teachers. Congcong and

Caingcoy (2020) identified conversational, relational, reflective, technical, reinforcing, and properly situated feedback mechanisms. Gestupa (2023) found that master teachers needed improvement in technological skills, while Ramos and Anonuevo (2024) emphasized the role of classroom observation in improving teaching quality and curriculum implementation. Naguit (2024) found a significant relationship between instructional leadership practices and teacher performance in instructional supervision. Atienza (2019) emphasized the importance of supervisory practices, instructional aids, and ICT integration in improving classroom participation and motivation. Globally, instructional supervision is increasingly connected to leadership effectiveness, teacher development, and school improvement. The literature from different contexts shows that school heads influence teaching quality through supervision, feedback, collaboration, and professional development. At the national level, the Philippine education system provides clear legal and policy bases for instructional leadership through Republic Act No. 9155, Republic Act 10533, DepEd Order No. 24, s. 2020, DepEd Memorandum No. 082, s. 2020, DepEd Order No. 35, s. 2016, and DepEd Order No.016 s.2023. These policies collectively support school leadership, teacher development, classroom supervision, professional learning communities, and the integration of technology in schools. At the local level, the study focuses on the Schools Division of Ligao City, where school heads and teachers experience varying levels of readiness, access, and confidence in using technology for supervision. The study is limited to 55 school heads and 133 teachers during School Year 2025–2026 and focuses specifically on instructional supervision. It does not include other administrative or financial functions of school heads. The intended output is an Instructional Supervisory Guide for School Heads based on the findings of the study.

The study is anchored on Instructional Leadership Theory by Philip Hallinger and Joseph Murphy (1985), Transformational Leadership Theory by James MacGregor Burns (1978) and Bernard M. Bass (1985), and the Clinical Supervision Model by McGhee and Stark (2021). Hallinger and Murphy (1985) emphasized three dimensions of instructional leadership: defining the school's mission, managing the instructional program, and promoting a positive school learning climate. In this study, the theory supports the idea that school heads must go beyond routine administration and actively guide instruction, curriculum, supervision, and teacher support. Transformational Leadership Theory by James MacGregor Burns (1978) and Bernard M. Bass (1985) emphasizes leadership that inspires followers to rise above personal interests and work toward shared goals through idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Applied to school leadership, this theory supports the role of school heads as leaders who motivate teachers, encourage innovation, develop trust, and promote professional growth. In the context of technology utilization, it explains how digital tools may help school heads transform supervision from traditional monitoring to a more responsive and modern process. The Clinical Supervision Model by McGhee and Stark (2021) emphasizes solution-focused and developmental supervision that supports teacher growth through collaborative coaching. It aligns with the observation cycle of planning, instructional delivery, feedback, and follow-up. In this study, the model supports the use of digital tools to strengthen supervision, enhance reflection, improve instructional quality, and support teacher competence. The study also introduces the Catalytic Instructional Supervision Theory (Bismonte, 2026), which views school heads as active agents of change who combine instructional leadership, transformational leadership, and clinical supervision using digital tools. This theory explains that school heads who lead with clear goals, professional care, structured supervision, and technology-supported practices can improve teacher competence and student achievement. Conceptually, the study follows an Input-Process-Output approach. The input includes the extent of technology utilization, its influence on school heads' performance, relevant theories, literature, studies, and legal bases. The process includes data gathering, tabulation, analysis, interpretation, testing of significant differences, and statistical treatment. The output is an Instructional Supervisory Guide for School Heads, with feedback serving as a mechanism for continuous improvement.

Although many studies have examined instructional supervision, instructional leadership, classroom observation, teacher feedback, and professional development, fewer studies directly focus on how school heads use technological or digital tools in conducting instructional supervision. Existing literature often emphasizes the administrative and supervisory roles of school heads, classroom observation practices, teacher motivation, feedback mechanisms, and leadership styles, but does not sufficiently address technology-supported supervision in the specific context of public elementary schools in Ligao City Division. This study addresses that gap by examining the extent to which school heads utilize technological tools in instructional supervision, how technology influences their performance, and whether perceptions differ between school heads and teachers. The study also responds to practical concerns such as time constraints, lack of training, limited resources, uneven access to digital tools, and differences in technology readiness. The rationale of the study is to generate evidence that may guide training, policy support, supervisory practice, and the development of an Instructional Supervisory Guide for School Heads.

This study is aligned primarily with SDG 4 – Quality Education because it focuses on improving instructional supervision, teacher support, classroom observation, feedback, professional development, and teaching-learning quality. By examining how technology supports school heads in supervising teachers, the study contributes to efforts to strengthen educational leadership and improve learning conditions. The study also relates to SDG 9 – Industry, Innovation and Infrastructure because it examines the use of digital tools, online platforms, ICT resources, and technology-assisted supervision in public elementary schools. Its concern with technology access, digital readiness, and supervisory efficiency supports innovation

in educational management. The study may also support SDG 16 – Peace, Justice, and Strong Institutions because it is anchored in policy-based school governance, professional standards, accountability, and improved institutional supervision. In addition, it has indirect relevance to SDG 17 – Partnerships for the Goals because the findings may guide collaboration among DepEd, school heads, teachers, local government units, community stakeholders, and learning institutions in improving technology-supported supervision.

The study contributes to educational sustainability by strengthening the capacity of school heads to supervise instruction more effectively and support teachers' professional growth. Improved supervision may lead to better feedback, clearer instructional guidance, stronger teaching practices, and improved learning outcomes. It also contributes to technological sustainability by encouraging the purposeful use of digital tools in classroom observation, communication, documentation, mentoring, and feedback. The study supports institutional sustainability by providing evidence that may help DepEd officials, curriculum writers, and learning institutions design training programs, leadership modules, and supervisory support systems that respond to actual needs. It also contributes to community and governance sustainability because the findings may inform local government units and community stakeholders on how they can support schools through technology-related resources, programs, and participation. Overall, the study situates instructional supervision as a multidisciplinary concern involving education, technology, leadership, governance, professional development, and community support.

2. Material and methods

2.1 Research Design

The study utilized the descriptive-quantitative method of research. According to Creswell (2003), descriptive-quantitative research tests objective theories by examining relationships among variables, collecting information from the research setting, and analyzing data from specific observations toward general interpretation. Similarly, Aliaga and Gunderson (2000) described quantitative research as the explanation of phenomena through numerical data analyzed using mathematically based methods, particularly statistics. This design was appropriate because the study measured the extent of technology utilization and its influence on effective instructional supervision among school heads in Ligao City Division. An unstructured informal interview was also used to clarify selected issues related to the research problems and variables.

2.2 Locale of the Study

The study was conducted in public elementary schools within the Schools Division of Ligao City. The final questionnaire was distributed in Districts A and B of Ligao City Division, while the dry run of the instrument was conducted in District C, which was not included in the final study.

2.3 Respondents of the Study

The respondents were school heads and teachers from public elementary schools in Ligao City Division. Specifically, the study involved 55 school heads and 133 teachers, with a total of 188 respondents. Learners, parents, and community stakeholders were not included as respondents.

2.4 Sample and Sampling Procedure

The study included 55 school heads and 133 teachers as the source of data needed to answer the research problems. The manuscript identified the respondent groups and their number but did not specify a named sampling technique. For instrument validation, 20 teacher-respondents from another district not included in the study participated in the dry run to provide comments on the strengths and weaknesses of the questionnaire.

2.5 Research Instrument

The main data-gathering instrument was a researcher-made questionnaire. Part I measured the extent of technology utilization by teachers and school heads using 15 indicators, while Part II measured the extent of technology influence on school heads' performance using another 15 indicators. The questionnaire was prepared based on criteria defined by Fao.org, including clear research objectives, completeness and accuracy of information, ease of response, and ease of tabulation. The draft questionnaire was submitted to the researcher's adviser for critiquing, improved through suggestions from the dry run, and finalized for distribution in Districts A and B of Ligao City Division. The instrument was validated through a dry run to assess clarity, specificity, time requirement, singleness of purpose, freedom from assumption, and grammatical correctness.

2.6 Data Gathering Procedure

The researcher secured permission to distribute the questionnaire from the Schools Division Superintendent of Ligao City Division and from the concerned Public Schools District Supervisors, principals, or school heads. The questionnaire was personally distributed and administered to the respondents, with instructions provided to ensure that they could answer without hesitation. The researcher also personally retrieved the completed questionnaires. Communication related to

distribution and retrieval was done through personal coordination, letters, cellphone text messages, group chats, and Messenger. The gathered data were then tabulated, organized, analyzed, and interpreted quantitatively.

2.7 Data Analysis Techniques

The study used frequency count, ranking, a five-point Likert-type rating scale, percentage technique, weighted mean, chi-square test, and Kruskal Wallis H Test. Frequency count was used to tally respondents' answers and determine response percentages, while ranking was used to compare the 15 indicators according to most or least utilized and most or least influential. The five-point Likert scale was used to interpret responses on technology utilization and influence, with verbal interpretations ranging from "Very Much Utilized / Very Great Influence" to "Not Utilized / No Influence." Percentage technique was used for nominal data, while weighted mean was used to determine the extent of technology tools utilization for instructional supervision and the extent of influence of digital tools on school heads' performance. The chi-square test was used to determine whether a statistically significant relationship existed between categorical variables, while the Kruskal Wallis H Test was used to test significant relationship between variables.

2.8 Ethical Considerations

The study observed institutional and/or national ethical standards. Consent was obtained from all participants, and confidentiality of responses was maintained. The identity of each respondent and the names of schools were concealed to protect privacy. Respondents were not required to write their names or school names on the questionnaire, and the completed questionnaires were properly kept to prevent leakage of confidential information.

3. Results and Discussion

3.1 Technology Utilization in Instructional Supervision

3.1.1 Extent of Utilization of Technological Tools

The findings showed that school heads highly utilized technological tools in conducting instructional supervision, with an overall weighted mean of 4.35, interpreted as "Very Much Utilized." The highest-rated tools were virtual classroom walkthroughs or observations through video conferencing platforms such as Zoom and Google Meet, with a weighted mean of 4.78; digital observation forms such as Google Forms and other applications instead of printed paper-based checklists, with a weighted mean of 4.74; and immediate post-conference feedback through electronic mail or instant messaging applications, with a weighted mean of 4.71. Other tools such as data analytics software, social media groups, online professional development platforms, digital coaching, digital evaluation data, online trackers, shared calendars, and streamlined digital workflows were also generally rated as "Very Much Utilized." The least utilized tools were digital calendars such as Google Calendar for scheduling supervisory visits, with a weighted mean of 3.55, and cloud-based storage such as Google Drive and OneDrive for managing teacher performance portfolios, with a weighted mean of 3.58. These results indicate that technology has become a regular part of instructional supervision among school heads and teachers in the study locale. Instructional supervision by school heads is described as a collaborative and continuous process that supports teachers through classroom observation, mentoring, and technical assistance to improve teaching quality and student outcomes (Research & Scientific Innovation Society, (2023). The findings also suggest that DepEd's Computerization Program and related digital initiatives have contributed to the use of laptops, tablets, smart TVs, internet connectivity, and online platforms in teaching and supervision. This supports Atienza (2019), who emphasized that school heads and master teachers encouraged the use of digital tools and ICT-based instructional aids to improve classroom participation, motivation, and teacher support.

3.2 Influence of Technology on Effective Instructional Supervision

3.2.1 Influence on School Heads' Supervisory Performance

The findings showed that technology had a "Very Great Influence" on instructional supervision, with an overall weighted mean of 4.26. The highest-rated indicators were automated reminders ensuring that supervision schedules are followed consistently and on time, with a weighted mean of 4.74; easy retrieval of historical data to track teachers' growth across quarters, with a weighted mean of 4.73; and the use of electronic assessment tools such as e-SAT to diagnose teachers' professional development needs, which was also rated as having very strong influence. Other indicators with "Very Great Influence" included data-driven tools for objective evaluation, cloud access, digital analysis for identifying technical assistance needs, multimedia feedback, automated survey tools, and shared online resource banks. The least influential indicators were the use of collaborative digital bulletin boards such as Padlet to monitor school-wide action research and curriculum initiatives, with a weighted mean of 2.92, and screen-recording software such as Loom and Canva for walkthroughs or feedback on digitized lesson plans, with a weighted mean of 2.85.

These findings show that technology improves instructional supervision by reducing manual work, improving access to records, supporting timely communication, and helping school heads make more evidence-based supervisory decisions. Instructional supervision is presented as a continuous and collaborative process that includes classroom observations, mentoring, and technical assistance rather than evaluation alone, helping teachers reflect on practice and improve professionally (Google.com). The results also confirm Abala (2024), who noted differences in how school heads identify

instructional needs, use digital tools in supervision, and design interventions to reduce teachers' limitations. The lower ratings for Padlet, Loom, Canva, and digitized lesson plan walkthroughs indicate the need for additional training on more specialized digital supervision tools.

3.3 Difference in Technology Utilization and Influence Between Respondent Groups

3.3.1 Significant Difference Between Teachers and School Heads

The Kruskal-Wallis test showed a significant difference in the perceptions of teachers and school heads regarding the extent of technology utilization and its influence on school heads' performance. The computed Z-score was 11.74, with an effect size result of 328.72, interpreted as having a "Large Effect." Based on the result, the null hypothesis was rejected, indicating a significant difference between the two respondent groups. This result implies that teachers and school heads did not fully share the same perception regarding how technology utilization influenced instructional supervision and school heads' performance. The finding supports Appellido and Ventura (2024), who highlighted the importance of a well-facilitated work environment, strong instructional leadership, intrinsic motivation, access to teaching resources, leadership development, collaborative teaching strategies, and updated technological infrastructure in improving teacher effectiveness. The result further supports the need for continuous professional development among teachers and school heads, particularly in the use of digital tools and leadership strategies for improving school performance.

3.4 Instructional Supervisory Guide for School Heads

3.4.1 Basis for the Proposed Instructional Supervisory Guide

Based on the findings, the study developed an instructional supervisory guide for school heads and teachers. The guide focused on the least-rated indicators, particularly the use of cloud-based storage such as Google Drive and OneDrive for managing teacher performance portfolios, Google Calendar for scheduling supervisory visits, screen-recording software such as Loom and Canva for feedback on digitized lesson plans, and collaborative digital bulletin boards such as Padlet for monitoring action research and curriculum initiatives. The proposed guide also included technology-supported supervision processes such as digital pre-observation planning, virtual or digital observation, digital feedback and coaching, data-driven professional development, digital teacher portfolios, virtual school and home observation, rubric-based digital portfolio review, and collaborative data-driven coaching through Learning Action Cell sessions. The development of the guide responds directly to the identified gaps in technology-supported instructional supervision. It shows that while common tools such as Zoom, Google Meet, Google Forms, email, messaging applications, and data tools were already highly utilized, more specialized tools for digital scheduling, cloud-based portfolio management, screen-recorded feedback, and collaborative bulletin boards still require further capacity building. The guide therefore serves as a practical training material for School Learning Action Cells, INSET, workshops, webinars, mentoring, coaching, and technical assistance, especially for teachers and school heads who are not yet fully familiar with these digital applications.

4. Conclusion & Recommendations

The study concluded that school heads in Ligao City Division "Very Much Utilized" technological tools in conducting instructional supervision, and that technology had a "Very Great Influence" on their supervisory performance, particularly in improving efficiency, documentation, feedback, and professional monitoring. The findings also showed a significant difference in the extent of technology utilization and its influence on instructional supervision, leading to the rejection of the null hypothesis. Based on these results, an instructional supervisory guide integrating technology was developed to support school heads and teachers in improving supervision practices.

Based on the findings and conclusions, school heads should strengthen teachers' awareness of instructional and administrative best practices to help them perform very satisfactorily or outstandingly in their yearly IPCRF. They should also encourage teachers to apply the four-stage cycle of planning, monitoring, evaluation, and development in their professional growth. More INSET, SLAC sessions, and webinars should be provided to address previous gaps in teachers' performance levels, process improvements, and new instructional strategies. The developed instructional supervisory guide may also be used by school heads and teachers during INSET, webinars, or School-Based LAC sessions.

The study was limited to 55 school heads and 133 teachers within Ligao City Division during School Year 2025–2026 and focused only on instructional supervision. It did not include schools or divisions outside the locale, nor did it cover other functions of school heads such as administrative or financial management. The instructional supervisory guide was developed strictly from the findings of this specific study.

Compliance with ethical standards

This study was conducted in accordance with institutional and national ethical standards. Participation was voluntary, informed consent was obtained from the respondents, and confidentiality was maintained by not requiring names or school identifiers in the questionnaire. All gathered data were properly handled and used solely for research purposes. The author

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