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Instructional Leadership Challenges and Strategies in Improving Teacher Professionalism in Vocational High Schools

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ABSTRACT

This study investigates instructional leadership challenges and strategies in enhancing teacher professionalism at SMKN 1 and SMKN 2 Tembilahan, Indragiri Hilir Regency. It aims to describe and analyze: (1) the challenges faced by principals' instructional leadership in improving teacher professionalism; and (2) the strategies implemented by principals to address these challenges. Using a qualitative descriptive design, this research involved principals, vice principals for curriculum affairs, and teachers as subjects. Data were collected through interviews, observations, and documentation, and analyzed with Miles, Huberman, and Saldaña's interactive model comprising data condensation, data display, and conclusion drawing and verification. The findings show multidimensional internal and external challenges. At SMKN 1, internal challenges include limited facilities and internet access, low ICT competence, dominance of lecture-based teaching, and high workload, while external constraints relate to limited supporting facilities, unequal access to training, and suboptimal implementation of the Merdeka Curriculum. At SMKN 2, internal challenges involve inconsistent supervision, limited laboratories and simulation software, technical disruptions, and low participation in training, accompanied by disparities in facilities, limited industrial training, and suboptimal industry MoUs and CSR support. Principals' adaptive, collaborative, and reflective strategies strengthen teacher professionalism and support sustainable improvement in vocational high schools.

1. Introduction

Education is the fundamental foundation for building a civilized society and a nation that continues to develop in response to social, economic, and technological change. In Indonesia, the direction and goals of national education are explicitly regulated in the Republic of Indonesia Law Number 20 of 2003 concerning the National Education System, which affirms that education aims to develop students' potential so that they become individuals who are faithful, noble in character, knowledgeable, skilled, creative, and responsible citizens. These objectives require

schools to provide learning environments that not only emphasize academic achievement but also foster students' character, skills, and adaptability to future challenges. To achieve these ideals, the quality of instructional processes in schools must be continuously improved in a systematic and sustainable manner. Within this framework, teachers occupy a central position because they are the main actors who design, implement, and evaluate learning processes in classrooms. Ministerial Regulation (Permendiknas) Number 16 of 2007 further emphasizes that every teacher must meet nationally defined standards of academic qualification and competence, including pedagogical, professional, social, and personal competencies, thereby positioning teachers as professional educators who are required to continuously upgrade their capabilities in line with the rapid development of science, technology, and society.

Teacher professionalism is therefore a key determinant of educational quality and is widely recognized as a complex, multidimensional, and dynamic construct. It encompasses mastery of subject matter, pedagogical expertise, professional ethics, reflective abilities, and commitment to continuous self-development. Joho et al., (2024) conceptualize teacher professionalism as an integration of knowledge, belief systems, motivation, and self-regulation that shapes teachers' instructional behavior and professional identity in the classroom. Professional growth does not occur instantly but develops through long-term processes, including formal qualifications, in-service training, mentoring, and experiential learning. Sahabuddin et al., (2023) highlight that improvements in instructional quality, curriculum implementation, and technological competence are built through systematic professional development activities such as workshops, peer collaboration, academic supervision, and reflective practice. These perspectives indicate that professionalism must be continuously strengthened and remain responsive to students' needs and the broader dynamics of educational change, and that schools need to create structures, cultures, and leadership practices that support teachers in carrying out their professional roles effectively.

Although each teacher bears primary responsibility for maintaining and enhancing their professionalism, external factors within the school environment play a decisive role, particularly school leadership. Numerous studies confirm that principals' leadership significantly influences teachers' motivation, commitment, and willingness to improve their professional competence. Ulfah et al., (2023) show that effective principal leadership has a positive impact on teachers' work motivation and performance, indicating that leadership is not limited to administrative tasks but extends to shaping school culture and instructional practices. Within this context, principals are increasingly viewed as instructional leaders who provide direction, support, and reinforcement for instructional improvement. Hallinger (2011) frames instructional leadership as a set of practices focused on defining the school's mission, managing the instructional program, and promoting a positive learning climate. Empirical studies strengthen this view: Hidayat et al., (2019) found that strong principal instructional leadership practices are associated with improved teacher performance, while more recent research by Nikmah et al., (2025) demonstrates that instructional leadership implemented through academic supervision, continuous mentoring, and structured monitoring

effectively enhances teacher professionalism. Similarly, Berkovich and Hassan (2022) conclude that consistent instructional leadership increases teacher motivation and contributes positively to student learning outcomes, suggesting that instructional leadership is a key mechanism for improving both teacher professionalism and learning quality.

However, the majority of previous studies on instructional leadership have been conducted in primary schools or general secondary schools, often in relatively well-resourced environments with adequate infrastructure and more equitable access to professional development. Research has not yet sufficiently explored how instructional leadership is practiced in vocational high schools, particularly in regions with limited facilities, uneven access to training, and evolving curriculum demands. Vocational high schools face distinctive challenges because they are expected to prepare students not only to meet academic standards but also to master practical skills aligned with industry needs. Teachers in vocational schools are thus required to possess dual competencies, namely pedagogical skills and technical or vocational expertise, as well as to engage in ongoing upskilling to keep pace with industrial developments. This complex demand makes instructional leadership in vocational education settings more challenging, as principals must simultaneously address constraints in infrastructure, curriculum changes, industry partnerships, and teacher professional development. SMKN 1 and SMKN 2 Tembilahan represent vocational high schools operating under such conditions, characterized by limitations in facilities, laboratories, simulation software, and industry-based training opportunities, which together shape the context in which instructional leadership and teacher professionalism interact.

Preliminary interviews and observations in SMKN 1 and SMKN 2 Tembilahan indicate that, although teacher professionalism is gradually progressing, it has not yet reached an optimal level in line with the expectations of vocational education. Teachers still encounter obstacles such as limited integration of learning technologies, low participation in training, insufficient variation in teaching methods, and challenges in classroom management. At the same time, principals' instructional leadership practices are perceived as not yet fully optimal, with leadership tending to focus more on administrative responsibilities than on sustained, structured support for teachers' professional growth. Academic supervision, facilitation of instructional innovation, and professional development support have not functioned at their full potential. These internal challenges are further reinforced by external constraints, including unequal access to training, limited industry partnerships, and the suboptimal implementation of the Merdeka Curriculum, especially in relation to aligning school programs with industry needs and local potentials. In light of these conditions, this study is needed to provide an empirical and contextualized description of how principals' instructional leadership is exercised in vocational high schools and how it relates to the strengthening of teacher professionalism under real-world constraints. Accordingly, the purpose of this study is to describe and analyze: (1) the challenges of principals' instructional leadership in improving teacher professionalism at SMKN 1 and SMKN 2 Tembilahan; and (2) the strategies implemented by principals in addressing these challenges to strengthen teacher professionalism in both schools.

2. Methodology

Research Design

This study employed a qualitative approach with a descriptive design, which is considered appropriate for exploring instructional leadership practices and teacher professionalism in natural school settings. Qualitative descriptive research emphasizes the exploration of phenomena in their real-life contexts and seeks to understand meanings, processes, and perspectives from the participants' point of view. As explained by Sugiyono (2019), qualitative research focuses on understanding social phenomena holistically through direct interaction with research subjects and natural field situations without manipulation of variables. This design allowed the researcher to comprehensively examine how principals implement instructional leadership, how supervision is conducted, and how teacher professionalism is developed in vocational high schools. The descriptive nature of this study enabled the researcher to portray actual leadership practices, professional development processes, and contextual challenges as they occur in everyday school life. By using this approach, the study was able to capture rich, detailed, and contextualized data regarding leadership dynamics, instructional supervision, and teacher behavior in the two schools. The qualitative descriptive design also ensured that the findings were grounded in empirical realities rather than statistical generalizations.

Research Site and Participants

The research was conducted at SMKN 1 and SMKN 2 Tembilahan, Indragiri Hilir Regency, Riau Province. These two vocational high schools were selected purposively based on their relevance to the research focus, differences in leadership characteristics, diversity of vocational departments, and their strategic role in preparing students for the world of work. Both schools represent vocational institutions that operate under conditions of limited facilities, evolving curriculum demands, and varying levels of teacher professional development. The selection of these sites allowed the researcher to capture contrasting yet comparable instructional leadership practices in real vocational education contexts. Participants in this study consisted of school principals, vice principals for curriculum affairs, and teachers. They were determined using purposive sampling based on their involvement, experience, and direct engagement in instructional leadership and teaching-learning processes. Principals were selected as key informants because of their central role as instructional leaders, while vice principals for curriculum and teachers were chosen because of their direct involvement in instructional supervision, curriculum implementation, and professional development activities. Through these participants, the study obtained comprehensive and in-depth information regarding instructional leadership practices, challenges, and strategies in both schools.

Instruments

In qualitative research, the main instrument is the researcher him or herself, who plays a central role in planning, collecting, interpreting, and validating data throughout the research process. Sugiyono (2019) emphasizes that in qualitative studies, the researcher acts as a key instrument because data are obtained directly through human interaction in natural settings. To support the researcher in collecting systematic and consistent data, several complementary instruments were also employed. These included interview guides, observation sheets, and documentation checklists. The interview guides contained semi-structured questions designed to explore participants' perceptions, experiences, and practices related to instructional leadership and teacher professionalism in depth. Observation sheets were used to systematically record classroom activities, instructional supervision, leadership interactions, and teacher behaviors during teaching and learning processes. Documentation checklists were designed to gather relevant institutional documents such as lesson plans, supervision reports, school profiles, organizational structures, professional development records, and curriculum documents. The use of these supporting instruments enabled the researcher to maintain focus, enhance data consistency, and strengthen the credibility of the collected data.

Data Collection Procedures

Data collection in this study was conducted through three main techniques, namely interviews, observations, and documentation. These techniques were chosen to ensure that data were collected in a comprehensive, systematic, and triangulated manner. The integration of multiple techniques allowed the researcher to capture both verbal and non-verbal data as well as written evidence related to instructional leadership and teacher professionalism in the research sites. The data collection process was carried out directly in the natural school environment, enabling the researcher to observe real instructional practices, leadership behaviors, and professional interactions without experimental manipulation. Each technique complemented the others and helped the researcher obtain a holistic understanding of the research phenomena:

Interviews

Semi-structured interviews were conducted with school principals, vice principals for curriculum affairs, and teachers as the main informants in this study. This interview technique allowed the researcher to obtain in-depth explanations, examples, and reflections regarding instructional leadership practices, academic supervision processes, teacher professional development activities, challenges encountered, and strategies implemented by school leaders. The semi-structured format provided flexibility for participants to elaborate on issues they considered important, while still ensuring alignment with the research objectives. Through interviews, the researcher explored how principals plan, implement, and evaluate instructional leadership, how teachers perceive leadership support, and how professional development programs are experienced in practice. Interviews were

also used to identify contextual constraints, institutional policies, and external factors that influence leadership and teacher professionalism. The richness of interview data enabled the researcher to capture participants' perspectives, motivations, and interpretations in detail.

Observations

Field observations were conducted to directly examine instructional activities, leadership behaviors, supervision practices, and interactions that occur during classroom instruction and school routines. Observation allowed the researcher to witness real-time teaching and leadership practices without relying solely on participants' verbal accounts. This technique provided empirical evidence of how instructional leadership is enacted in daily school activities and how teachers implement professional practices in the classroom. Observation data included records of teaching methods, use of instructional media, classroom management strategies, supervision meetings, and professional interactions among teachers and school leaders. By observing natural behaviors and routines, the researcher was able to validate interview findings and identify discrepancies between what participants reported and what actually occurred in practice. Observations also helped capture the school climate and learning culture that shape teacher professionalism.

Documentation

Documentation was used as a complementary data source to strengthen the credibility and completeness of the research findings. Documents analyzed in this study included school profiles, vision and mission statements, academic supervision reports, professional development program records, lesson plans, curriculum documents, and organizational structures. These documents provided institutional evidence of leadership policies, instructional programs, and professional development initiatives implemented in both schools. Documentation also offered historical and administrative context that helped the researcher understand how instructional leadership and teacher professionalism have been developed over time. By analyzing written records, the researcher was able to verify information obtained from interviews and observations and to identify consistencies between formal policies and actual practices in the field.

Data Validation

To ensure the credibility and trustworthiness of the data, this study applied triangulation as the main validation strategy. Triangulation of sources and triangulation of techniques were employed to cross-check information obtained from different participants and through different methods. Data collected from interviews were compared with observation findings and documentation to identify consistencies, contradictions, and reinforced interpretations. This process enabled the researcher to reduce bias and enhance the accuracy of interpretations. Credibility was further strengthened through prolonged engagement in the field and repeated checking of emerging findings with participants. By applying systematic

triangulation, the study ensured that conclusions were based on converging evidence rather than single data sources.

Data Analysis

Data analysis in this study followed the interactive model developed by Miles, Huberman, and Saldana (2020), which consists of data condensation, data display, and conclusion drawing and verification. This model emphasizes that qualitative data analysis is a continuous, cyclical, and interactive process that occurs throughout data collection and interpretation. Data analysis was conducted simultaneously with data collection to allow the researcher to refine focus, identify emerging patterns, and deepen understanding of instructional leadership and teacher professionalism in the research sites.

Data Condensation

Data condensation refers to the process of selecting, focusing, simplifying, and transforming raw data obtained from interviews, observations, and documentation. At this stage, the researcher organized large volumes of qualitative data by coding, categorizing, and identifying themes related to instructional leadership challenges and strategies as well as teacher professionalism. Irrelevant data were reduced, while meaningful information was retained and grouped into conceptual categories. This process enabled the researcher to sharpen analytical focus and to systematically organize data in accordance with the research objectives.

Data Display

Data display involves organizing and presenting condensed data in an accessible and systematic form to facilitate interpretation and pattern recognition. In this study, data were presented in the form of descriptive narratives, matrices, and summary tables. Through these displays, the researcher was able to compare leadership practices, professional development activities, and challenges across the two vocational schools. Data display helped reveal relationships among themes and supported the identification of similarities and differences between SMKN 1 and SMKN 2 Tembilahan. This stage also enabled the researcher to continuously reflect on the meaning of the data and to refine analytical interpretations.

Conclusion Drawing and Verification

Conclusion drawing and verification involved interpreting the displayed data to generate meaningful findings and theoretical insights. Preliminary conclusions were formulated based on emerging patterns and relationships and were continuously tested through further data collection, comparison among sources, and re-examination of field evidence. Verification was conducted by checking the consistency of findings across interviews, observations, and documentation. The final conclusions represent integrated, validated, and empirically grounded interpretations that reflect the actual instructional leadership practices and strategies employed to strengthen teacher professionalism in the two vocational schools studied.

3. Results and Discussion

This section presents and discusses the empirical findings on the challenges of principals' instructional leadership in improving teacher professionalism and the strategies implemented to address these challenges at SMKN 1 and SMKN 2 Tembilahan. The results are organized into two major themes, namely: (1) multidimensional challenges of instructional leadership, and (2) adaptive, collaborative, and reflective strategies for strengthening teacher professionalism. Before elaborating these themes, this section first outlines the general conditions of both vocational schools and briefly describes how the field research and interview processes were conducted, so that the discussion of findings is firmly anchored in the actual institutional context and research procedures. The discussion then connects the empirical results with relevant theoretical perspectives on instructional leadership and teacher professional development, highlighting the specific characteristics of vocational education in a regional setting.

SMKN 1 Tembilahan is one of the state vocational high schools under the authority of the Regional Office IV of the Riau Provincial Education Office. The school was established in 1965 and was granted state-school status in 1967 through Decree of the Minister of Education and Culture of the Republic of Indonesia No. 35/PT/IV/1967 dated 30 November 1967. It is located in Indragiri Hilir Regency and has developed into a large vocational institution with four major fields of expertise, namely information technology, business and management, tourism, and arts and creative economy. There are seven skill programmes: Computer and Network Engineering and Telecommunications (TJKT), Marketing, Office Management and Business Services (MPLB), Accounting and Financial Institutions (AKL), Culinary Arts, Visual Communication Design (DKV), and Fashion. At the time of the study, SMKN 1 Tembilahan had 74 teachers and 1,255 students, with the status of a Centre of Excellence (SMK-PK), which requires the school to continuously update its instructional practices and maintain strong links with business and industry. These school characteristics frame the way instructional leadership and teacher professionalism are enacted in a relatively large and complex vocational environment.

SMKN 2 Tembilahan is also a state vocational high school located in Indragiri Hilir Regency and was established in 2000 based on Decree of the Minister of Education and Culture of the Republic of Indonesia No. 217/O/2000 dated 17 November 2000. The school offers ten skill programmes, namely Building Information Modelling and Design, Geomatics Engineering, Electrical Power Installation Engineering, Machining Engineering, Light Vehicle Engineering, Motorcycle Engineering, Audio-Video Engineering, Solar, Hydro and Wind Energy Engineering, Biomass Energy Engineering, and Computer and Network Engineering. At the time of the research, SMKN 2 Tembilahan had 82 teachers and 1,450 students. The school's vision is to produce graduates with Pancasila character who are ready for work and entrepreneurship, supported by technology and environmental awareness, and this is operationalized through missions that emphasize strengthening Pancasila values, preparing students for employment, building entrepreneurial spirit, integrating technology into learning, and enhancing students' environmental concern. Both

schools therefore operate as large, multi-programme vocational institutions with substantial student populations, diverse departments, and explicit expectations to align learning with labour-market needs, which together shape the demands placed on principals' instructional leadership and teacher professionalism.

In terms of research implementation, the study was conducted directly at SMKN 1 and SMKN 2 Tembilahan using a qualitative descriptive design that emphasizes natural settings and in-depth inquiry. Data were collected through prolonged engagement in the field, combining in-depth interviews, non-participant observations, and documentation analysis. Face-to-face semi-structured interviews were held with school principals, vice principals for curriculum affairs, and selected teachers in both schools, based on purposive sampling that considered their roles, experience, and involvement in instructional leadership and professional development activities. Interview guides were developed based on a structured interview protocol covering two main foci: challenges of instructional leadership (internal and external) and principals' strategies in responding to these challenges. Observations were carried out to capture actual supervision practices, classroom instruction, teacher–student interactions, and professional behaviour, while documentation included school profiles, supervision records, professional development reports, and curriculum documents. The integration of these techniques enabled triangulation of sources and methods, ensuring that the findings in this section are grounded in convergent evidence from interviews, observations, and written records rather than from a single data source.

To provide a clear overview of the interview focus areas, Table 1 summarizes the key questions used during data collection with principals, vice principals, and teachers. These questions are grouped into two main foci, namely challenges of instructional leadership and principals' strategies for addressing those challenges, each further divided into internal and external dimensions. This table reflects the operationalization of the research questions into concrete interview prompts that guided the in-depth exploration of leadership practices and teacher professionalism in both schools.

Table 1. Key Interview Questions Used in Data Collection

Focus	Aspect	Sample Interview Questions
Challenges of instructional leadership	Internal	(1) How does the principal's supervision support the improvement of teacher competence? Is it more oriented to administrative compliance or direct pedagogical coaching? (2) What obstacles do teachers encounter in using instructional technology in the classroom? (3) Why do teaching methods still tend to rely on lecture-based approaches? (4) How does teacher workload influence

Principals' strategies in addressing challenges	External	participation in training or workshops? (5) What are the main difficulties teachers face in managing classes and encouraging student participation? (6) How do school facilities and infrastructure support interactive learning processes? (7) Is teachers' access to face-to-face and online training fairly distributed? (8) To what extent do the school committee, parents, and government support teacher professionalism? (9) What challenges do teachers face in adapting to ongoing changes in education policy, such as curriculum reforms?
	Internal	(10) What teacher training or workshop programmes have been implemented by the school in recent years? (11) How does the principal provide guidance, mentoring, or coaching to teachers in improving their instructional practices? (12) To what extent does the principal provide regular feedback after classroom supervision? (13) What efforts does the principal make to encourage teacher collaboration in developing innovative learning? (14) What strategies does the school employ to optimize the use of instructional technology in classrooms?
	External	(15) What forms of cooperation does the school have with external parties (government, universities, private sector) in supporting teacher development? (16) How does the principal involve the school committee and parents in supporting teachers' competence enhancement? (17) Does the school make use of government programmes such as Pengembangan Keprofesian Berkelanjutan (PKB), Pendidikan Profesi Guru (PPG), or other teacher

development platforms? (18)
What steps does the principal
take to obtain additional
facilities and resource support
from external stakeholders?

Challenges of Instructional Leadership in Improving Teacher Professionalism

The findings show that principals' instructional leadership in both schools faces complex and multidimensional challenges. These challenges are rooted in internal conditions within the schools as well as external factors relating to infrastructure, policy, and partnerships with external stakeholders. Internally, both principals have to deal with limited ICT infrastructure, heavy teacher workloads, uneven digital competence, and the need to align supervision with genuine pedagogical improvement rather than mere administrative compliance. Externally, the schools grapple with unequal access to high-quality professional development, the partial and uneven implementation of the Merdeka Curriculum, and vocational industry partnerships that do not yet fully support practice-based learning at the standard required by the labour market. Together, these pressures shape a demanding context for instructional leadership that requires strategic, adaptive, and sustained responses.

SMKN 1 Tembilahan

At SMKN 1 Tembilahan, internal challenges primarily relate to limited digital learning facilities, unstable internet connectivity, and uneven ICT competence among teachers, which directly affect the quality of classroom instruction and the implementation of modern pedagogical approaches. Many teachers still rely heavily on lecture-based methods due to pressure to complete the curriculum and low confidence in using educational technology, especially when digital devices and networks are unreliable. In addition, teachers' workloads are very high, as they must manage teaching obligations in large classes, extensive administrative tasks, supervisory duties, and extracurricular activities. These conditions restrict teachers' opportunities and energy to engage in ongoing professional development. Supervision practices also present a challenge: although academic supervision is conducted, it tends to focus on the fulfilment of administrative documents rather than on genuine observation of classroom practices, reflective dialogue, and systematic pedagogical follow-up, so that the impact on improving teachers' instructional competence remains limited. Classroom management is further complicated by large class sizes (around 38-42 students per class), limited practicum facilities, and diverse student motivation linked to socio-economic backgrounds, while the number of counsellors is not yet proportional to student needs, which collectively constrains sustained innovation and professional growth.

From an external perspective, interactive learning is constrained not by the basic classroom buildings, which are generally adequate, but by supporting facilities such as projectors that are not evenly distributed, unstable Wi-Fi networks, and workshops or laboratories with equipment that lag behind industrial standards.

Teachers frequently need to share tools, bring personal devices, or revert to traditional lecture methods when digital media or practicum equipment fail, which undermines efforts to modernize learning. Access to training is also uneven due to limited quotas, late information, the cost and distance of face-to-face training, and weak internet connectivity for online training. Professional development programmes such as PKB are not followed by all teachers, and lesson plans still tend to be dominated by expository approaches rather than student-centred or project-based learning. Adaptation to the Merdeka Curriculum is hampered by insufficient socialization, demanding new documentation requirements, and large classes that make differentiation and project-based learning difficult to implement. These findings indicate that the principal struggles to balance administrative demands with the need to provide continuous, practice-based professional guidance, reinforcing the argument that instructional leadership is not merely a technical function but requires strategic management of human and material resources in order to sustain teacher professionalism in a changing policy environment.

SMKN 2 Tembilahan

At SMKN 2 Tembilahan, internal challenges include the inconsistency of follow-up after classroom supervision, limited and unevenly distributed practicum equipment, and the partial obsolescence of laboratories and simulation software that are crucial for vocational learning. While supervision is conducted in a collaborative and reflective manner and covers aspects such as lesson preparation, readiness of tools, and two-way discussion, it often lacks sustained follow-up to ensure that agreed instructional innovations are actually adopted and embedded in classroom practice over time. Information and communication technology is not yet optimally utilized because devices are limited, maintenance is insufficient, and technical disturbances recur, including power issues and network instability. Large class sizes and limited practicum tools mean that teachers often rely on lecture methods as an adaptive strategy to complete the curriculum, which reduces the proportion of hands-on practice in vocational subjects and risks weakening the link between school learning and industry requirements. Teachers' workloads are also heavy, covering teaching, administration, competency tests, student competitions, and industry collaboration tasks, which restricts their participation in longer and more intensive professional development programmes. In terms of classroom management, the diversity of student character and discipline, combined with minimal learning media in some departments, requires teachers to use small-group arrangements, emphasize work ethics, and employ creative teaching strategies such as simulations and case studies to maintain engagement.

External challenges at SMKN 2 Tembilahan concern the quality of vocational learning, which is constrained by unequal practicum facilities across departments. Some workshops and laboratories still use outdated equipment, leading teachers to adjust learning content to tools that do not fully match industry standards. Access to industry-based training is limited in terms of quota, cost, duration, and intensity of practical exposure, so that many training programmes remain largely theoretical. Cooperation with business and industry (DUDI) has been formalised through

Memoranda of Understanding (MoUs), yet implementation is hampered by the limited capacity of companies to accept students for Praktik Kerja Lapangan (PKL), misalignment between industrial production schedules and the academic calendar, and student placements that are not always aligned with their specific vocational majors. Competency-based assessment is also not yet fully optimal, as it relies heavily on written tests, uneven understanding of industry standards among teachers, and limited time to assess both process and product in practicum activities. These findings highlight that the principal's instructional leadership is challenged not only by internal capacity constraints but also by structural limitations in vocational–industry partnerships, requiring leadership that can actively manage and negotiate external relationships to achieve professional standards aligned with labour-market expectations.

As depicted in this thematic overview, internal challenges include limited ICT and infrastructure, heavy teacher workload, uneven teacher digital competence, and inconsistent supervision, while external challenges relate to limited access to structured training, weak and unevenly implemented industry partnerships, and difficulties in enacting curriculum reforms such as the Merdeka Curriculum in large vocational settings. Figure 1 presents a thematic map of the internal and external challenges faced by principals in exercising instructional leadership in both schools.

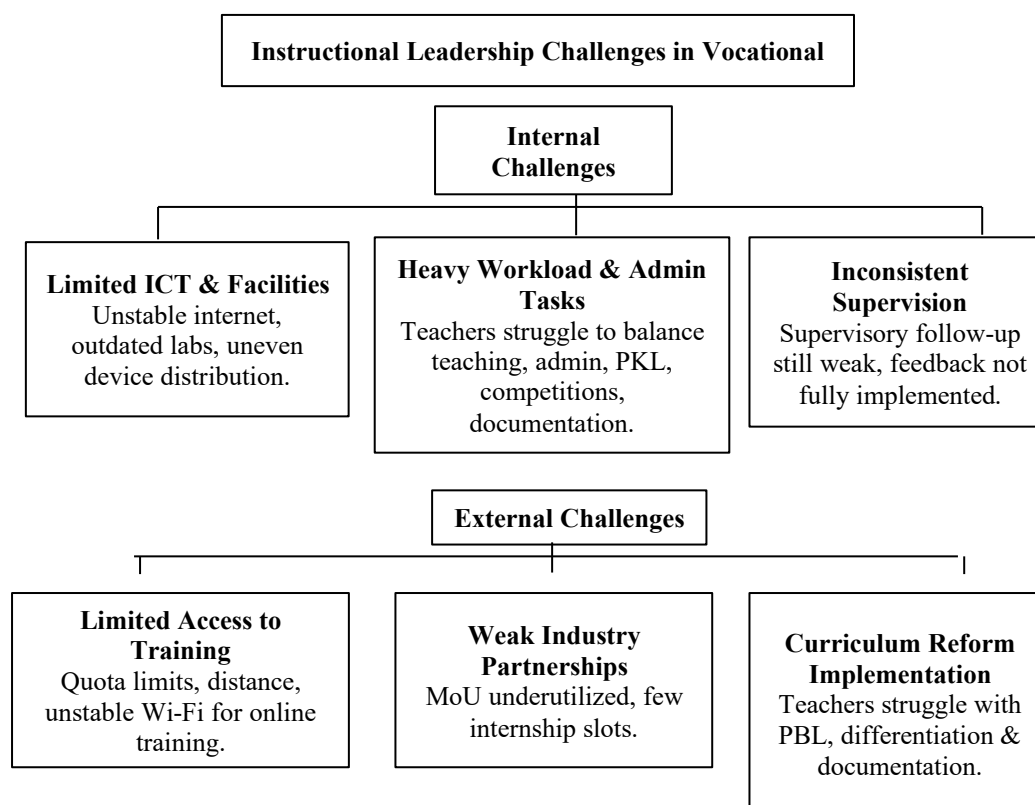


Figure 1. Instructional Leadership Challenges In Vocational Schools

These patterns are further detailed in Table 2, which summarizes the main challenges identified at SMKN 1 and SMKN 2 Tembilahan across several key domains.

Table 2. Instructional Leadership Challenges in Two Vocational Schools

Domain	SMKN 1 Tembilahan	SMKN 2 Tembilahan
ICT & Infrastructure	Unstable internet; uneven projector distribution; outdated practicum tools in certain departments.	Outdated laboratories; limited and uneven simulation software; frequent technical disruptions in devices and networks.
Teacher Competence	Low ICT competence among some teachers; strong reliance on lecture-based methods to complete the curriculum.	Uneven digital competence; continued reliance on lecture methods due to tool limitations and large class sizes.
Supervision	Supervision still strongly document-oriented; limited focus on classroom practices and weak follow-up after observations.	Collaborative supervision in place, but follow-up is not yet fully consistent and sustained in practice.
Teacher Workload	Heavy teaching load, administrative tasks, supervision duties, and extracurricular responsibilities.	High workload including teaching, administration, competency tests, student competitions, and industry liaison roles.
Students Factors	Large classes; varied student motivation and socio-economic background; limited counsellor-to-student ratio.	Discipline issues and varied readiness; limited learning media in some programmes; need for intensive classroom management.
External Training Access	Limited quota; unstable network for online training; distance and cost barriers for face-to-face training.	Cost and scheduling conflicts; restricted access to long-duration industry-based training programmes.
Industry Partnerships	MoUs with industry partners not yet optimally implemented in practicum and PKL activities.	Limited PKL slots; misalignment between school calendar and industry schedules; placements not always aligned with vocational majors.
Curriculum Implementation	Difficulties in project-based learning and differentiation under the Merdeka Curriculum in large classes.	Inconsistent implementation of competency-based assessment; time constraints in practicum scoring and authentic evaluation.

Principals' Strategies to Address Challenges and Strengthen Teacher Professionalism

In response to these internal and external challenges, principals at SMKN 1 and SMKN 2 Tembilahan implemented various instructional leadership strategies that are adaptive, collaborative, and reflective in nature. These strategies focus on strengthening teacher professionalism through structured professional development programmes, reflective supervision cycles, the cultivation of collaborative cultures, and the expansion of external partnerships. Although constrained by limited resources and contextual barriers, the principals attempt to integrate internal

capacity-building efforts with external support mechanisms, thereby gradually constructing a more supportive ecosystem for teacher professional growth. The following sub-sections describe the specific strategies at each school and how they address the identified challenges.

SMKN 1 Tembilahan

At SMKN 1 Tembilahan, professional development is directed through a series of structured programmes aligned with curriculum reforms and digital transformation. The principal organizes regular training on the Merdeka Curriculum, lesson study, and ICT integration, which has begun to be reflected in lesson plans and classroom practices in several departments. Personal coaching after supervision, along with technical guidance on lesson plans and teaching modules, accelerates adaptation especially for new teachers and those who feel less confident with new requirements. Supervision is followed by written feedback and scheduled follow-up meetings that encourage teacher reflection, while the discussion of supervision results in monthly meetings strengthens a collective learning culture where teachers can share difficulties and solutions. Collaboration is encouraged through innovation teams, lesson study groups, and forums for presenting teaching ideas, which enhance teachers' confidence and promote the exchange of good practices across departments. The use of technology such as hotspots, projectors, and digital tools (for example Canva and Quizizz) makes learning more interactive and begins to reduce the dominance of traditional lecture methods in some classes.

However, the effectiveness of these initiatives remains constrained by limited funding, dense schedules, administrative workload, uneven digital literacy among teachers, unstable internet networks, insufficient devices, psychological barriers to receiving criticism, seniority dynamics, incomplete documentation of best practices, and large class sizes that make individualized follow-up difficult. To accelerate impact, the school promotes more equal access to training through rotation and partnerships, peer mentoring between digitally competent teachers and those less confident, consistent and supportive supervision cycles that focus on pedagogy rather than just documents, the standardization of documentation for collaborative practices, the development of offline backup materials, clear scheduling of shared devices, and ICT infrastructure improvements based on actual needs. These efforts are supported by the use of quarterly performance indicators to monitor progress in teacher competence and the quality of learning, reflecting an attempt to make instructional leadership more data-informed and sustainable.

Externally, the school builds stronger collaboration with various stakeholders and manages resources in a planned manner. Partnerships with the local education office, universities, and business and industry are used to broaden teacher training opportunities and student learning experiences beyond the school environment. School committees and parents are involved in supporting programmes, both morally and financially, particularly in relation to upgrading facilities and supporting student activities. The school also leverages government programmes such as PKB, PPG, and online training platforms to enhance teachers' competencies on an ongoing basis despite quota and connectivity limitations. Additional facilities

are pursued systematically through formal proposals to the education office, participation in Corporate Social Responsibility (CSR) schemes, and the mobilization of alumni networks. These actions reflect a proactive, adaptive, and collaborative form of instructional leadership that attempts to optimize external opportunities to improve teaching quality, teacher professionalism, and school facilities in a context of resource constraints.

SMKN 2 Tembilahan

At SMKN 2 Tembilahan, the principal promotes teacher professionalism through five interrelated pillars that together constitute a coherent strategy. First, training and workshops, including inter-vocational-school collaboration and selected out-of-town training, are used to enrich industry-based teaching practices, even though participation is constrained by cost and scheduling conflicts with teaching duties. Second, mentoring, particularly for new teachers in lesson plan and module preparation, supports adaptation to curricular and assessment demands, although the duration and coverage of mentoring remain limited relative to the number of teachers requiring support. Third, feedback from classroom supervision is provided through written notes and follow-up meetings in teacher forums, which encourages reflection on teaching practices, although some teachers still view supervision as a formality and follow-up is sometimes delayed due to administrative workload and large classes. Fourth, teacher collaboration occurs in cross-subject teams, sharing forums, and joint development of instructional media, which improves learning quality but is at times hampered by seniority patterns, individual work preferences, and differences in teaching schedules that make regular meetings difficult to organize.

Fifth, technology is optimized through the use of tablets or computers, e-learning platforms, and interactive applications to increase student engagement and facilitate blended learning. However, these efforts are frequently disrupted by maintenance issues, limited technical support, and electricity or network problems that interrupt the continuity of technology-based lessons. Triangulation of interview, observation, and documentation data confirms the positive impact of these programmes, especially in departments that actively engage in collaboration and innovation, while also indicating the need to strengthen budgeting and scheduling, structured mentoring, reflective culture, documentation of best practices, and sustained technical support. To address external challenges, SMKN 2 Tembilahan adopts four main strategies. The school strengthens industry partnerships through MoUs that provide real practicum opportunities, although they are constrained by partner capacity, company regulations, and the slower pace of teacher upskilling relative to technology change in industry. The school involves committees and parents whose support is strong for non-academic activities but remains limited for academic programmes, requiring more persuasive communication and flexible mechanisms for involvement.

Government programmes such as PKB, PPG, and online training are maximized by facilitating teacher registration, sending reminders, and providing stable internet spaces at school, which effectively enhance teacher competence despite quota limits

and weak home connections. Finally, the school systematically pursues additional facilities through data-based proposals to the education office, CSR partnerships, and documentation of needs compiled by teachers, which has started to yield gradual improvements in practicum equipment. These measures portray a collaborative, evidence-based, and adaptive management approach that aligns vocational learning more closely with industry needs and strengthens resource support for teacher professionalism. The main strategic orientation of principals' instructional leadership in both schools is visualized in Figure 2.

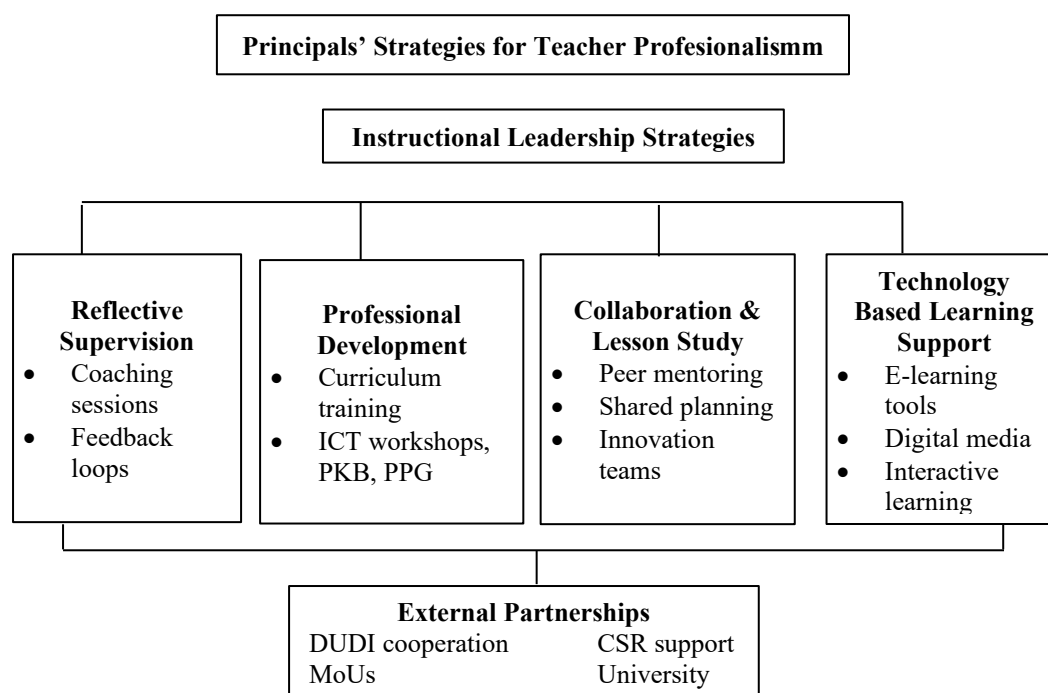


Figure 2. Principals' Strategies for Teacher Professionalism

While the concrete strategies are summarized in Table 3.

Table 3. Strategies for Strengthening Teacher Professionalism

Strategy Category	SMKN 1 Tembilahan	SMKN 2 Tembilahan
Supervision & Coaching	Reflective academic supervision; post-supervision coaching; written feedback and scheduled follow-up meetings; discussion of supervision results in monthly teacher meetings.	Written supervision notes; teacher coordination meetings; mentoring for new teachers in lesson plan/module design; reflective discussions after selected observations.
Professional Development	ICT training; lesson study cycles; Merdeka Curriculum workshops; participation in PKB and PPG programmes; internal technical guidance on teaching modules.	Workshops; inter-school training; industry-based training programmes; limited but targeted participation in government-sponsored PD.
Teacher Collaboration	Innovation teams; peer mentoring; Professional Learning Communities (PLCs) and lesson	Sharing forums; cross-subject collaboration; joint development of

Technology Use	study cycles; forums for presenting teaching ideas. Use of Canva, Quizizz, projectors, and digital learning modules; school hotspots and shared devices to support interactive teaching.	instructional media; small teacher work groups. Use of tablets/computers, e-learning platforms, and interactive applications; development of digital learning resources despite maintenance constraints.
External Partnerships	Collaboration with universities, DUDI, CSR programmes, alumni networks, and the local education office for training and facilities.	Industry MoUs, CSR support, and government-provided training platforms; committee and parent involvement in selected programmes.
Resource & Facility Management	Data-based proposals for facilities; optimization of BOS funds; gradual upgrading of practicum tools based on priority needs.	CSR-based facility proposals; documentation of departmental needs; stepwise enhancement of practicum facilities across programmes.

Synthesis and Theoretical Implications

Overall, the findings show that principals' instructional leadership in both SMKN 1 and SMKN 2 Tembilahan is actively implemented but still faces complex internal and external challenges that are typical of large vocational schools in regional settings. Internally, principals must navigate limited facilities, heavy teacher workloads, uneven ICT competence, and the need for consistent, reflective follow-up after supervision, while simultaneously fostering collaborative cultures that support professional learning. Externally, they must cope with constrained access to high-quality professional development, the partial and sometimes fragmented implementation of the Merdeka Curriculum, and vocational industry partnerships that are not yet fully aligned with labour-market standards in terms of practicum quality, assessment, and technology. These conditions illustrate that instructional leadership in vocational schools requires a dual focus on strengthening internal teacher-learning systems and managing external networks and resources in a strategic and sustained manner.

The strategies identified in this study illustrate a shift in the role of principals from administrative managers to leaders of learning who foster reflective, collaborative, and adaptive cultures in their schools. This aligns with Hallinger (2018) framework, which emphasizes three core dimensions of instructional leadership: defining the school mission, managing instructional programmes, and promoting a positive learning climate. The principals of SMKN 1 and SMKN 2 demonstrate these dimensions through the establishment of adaptive visions for vocational learning under the Merdeka Curriculum, the organization of ongoing teacher professional development, and the creation of school climates that support pedagogical innovation despite resource constraints. The findings are also consistent with Bush (2020) view that contemporary educational leaders must become strategic instructional leaders who connect educational policies with the real needs of schools, particularly in complex sectors such as vocational education.

Mulyasa (2019) stresses that teacher professionalism grows when principals create collegial learning cultures based on collaboration, while Glickman et al., (2013) highlight the importance of reflective supervision in supporting intrinsic motivation for improvement. Leithwood and Jantzi (2020) similarly underline that instructional leadership focused on empowerment and teacher reflection significantly enhances motivation and pedagogical competence. By situating the empirical findings within these theoretical perspectives, this study confirms that effective instructional leadership in vocational schools requires the integration of internal teacher-development functions with external collaboration and professional networking. Through internal programmes such as lesson study, coaching, PLCs, and reflective supervision, combined with external partnerships with universities, industry, government agencies, and community stakeholders, principals can gradually construct a sustainable learning ecosystem that strengthens teacher professionalism and ensures that vocational education remains relevant to national policy demands and industry expectations.

4. Conclusion

This study set out to describe the challenges of instructional leadership in improving teacher professionalism and to analyze the strategies implemented by principals at SMKN 1 and SMKN 2 Tembilahan. The findings show that instructional leadership in both schools is enacted within significant internal and external constraints, including limited ICT facilities, uneven digital competence, heavy workloads, large classes, and supervision practices that have not always led to sustained instructional improvement. Externally, restricted access to high-quality professional development, industry partnerships that are not yet fully effective, and demanding curriculum reforms create additional pressures that shape how principals and teachers carry out their roles. In response, principals have adopted adaptive, collaborative, and reflective strategies such as reflective supervision, coaching, structured professional development, lesson study, teacher collaboration, technology-assisted learning, and expanded partnerships with government, universities, and industry. These efforts indicate a clear shift from a predominantly administrative orientation toward an instructional leadership model that actively supports teacher learning and professionalism. In this sense, the research objectives were largely achieved, as the study successfully mapped the main challenges and documented the strategies used to address them in real vocational school contexts. Nonetheless, the study remains limited to two schools and a specific regional setting, so future research is needed to examine the long-term impact of these strategies on classroom practice and to explore similar patterns of instructional leadership in other vocational environments.

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