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TEACHERS' STRATEGIES, IMPLEMENTATION, AND CHALLENGES IN DEVELOPING CRITICAL THINKING IN ESP CLASSROOMS

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abstract

Vocational high school students are expected to develop English competence that supports future workplace communication, yet English for Specific Purposes (ESP) instruction is often reported to emphasize vocabulary and grammar over reasoning and problem solving. This study investigates the strategies teachers use to develop students' critical thinking in ESP classes and how these strategies are implemented and adapted across classroom contexts, as well as the challenges teachers face in integrating critical thinking into ESP instruction. A qualitative case study design was employed, with data gathered through structured interviews with two ESP teachers and non-participant classroom observations in Grade X and Grade XI vocational classes (Light Vehicle Engineering/TKR and Computer and Network Engineering/TKJ) at a vocational high school in Cirebon, Indonesia. Data were analyzed thematically by comparing interview and observation evidence. The findings indicate that teachers relied primarily on teacher explanation, questioning for comprehension checks, writing tasks, presentation tasks, language scaffolding, and classroom adaptation, with occasional planned discussion or problem-based tasks; implementation and adaptation occurred mainly at the level of instructional delivery, such as pace, guidance intensity, and language choice, rather than through differentiated task design. Teachers also faced challenges including students' limited English proficiency, teacher-centered instruction, uneven participation, low speaking confidence, and limited critical feedback, reflection, and revision opportunities. The study concludes that while teachers' strategies supported comprehension and classroom participation, deeper critical thinking development requires stronger integration of field-related tasks, analytical questioning, reasoning-based feedback, and structured reflection.

INTRODUCTION

Vocational education in Indonesia is designed to prepare graduates for immediate entry into the workforce, yet the employment outcomes of vocational high school (SMK) graduates remain a persistent concern. Setyawan et al. (2026) reported that the unemployment rate among SMK graduates in Indonesia remains high, indicating a mismatch between the competencies taught in vocational schools and the demands of the workplace. Similar evidence was reported by Ariansyah et al. (2024), who found that vocational graduates continue to experience uneven labor market outcomes despite the employment-oriented mission of vocational education. These findings suggest that vocational education needs to equip students not only with technical competence but also with transferable competencies such as communication, problem solving, decision making, and critical thinking, which increasingly determine graduates' ability to adapt to dynamic workplace environments.

The increasing complexity of contemporary workplaces has further reinforced the expectation that vocational graduates possess transferable cognitive skills in addition to

occupation-specific expertise. Employers increasingly value workers who can interpret workplace information, evaluate alternative solutions, make evidence-based decisions, and communicate their reasoning effectively in professional settings. Consequently, vocational education is no longer viewed merely as preparation for specific technical tasks but as a learning environment where students develop adaptive expertise that enables them to respond to changing technologies, organizational practices, and workplace challenges. Within this broader perspective, critical thinking becomes an essential competence that supports both employability and lifelong learning. López et al. (2023) likewise argued that technical and vocational education should explicitly cultivate critical thinking because modern workplaces require employees to analyze complex situations, evaluate available information, and make informed judgments rather than simply perform routine procedures.

English for Specific Purposes (ESP) is directly relevant to this concern because it is designed to address learners' academic, disciplinary, and occupational communication needs through authentic language use in professional contexts. Contemporary ESP is no longer confined to teaching specialized vocabulary or occupational expressions but emphasizes the integration of language learning with disciplinary knowledge, workplace communication, and professional problem solving (Basturkmen, 2025; Dou et al., 2023). Within Indonesian vocational education, this orientation is particularly important because English instruction is expected to prepare students for communication demands encountered in their future careers rather than for general language proficiency alone (Mahbub, 2018; Wahyudi & Jufrizal, 2023).

Ideally, ESP instruction moves beyond vocabulary and grammar drills to provide opportunities for students to interpret information, analyze problems, evaluate ideas, and express arguments logically. Authentic workplace scenarios, professional documents, case-based discussions, and collaborative problem-solving tasks create meaningful contexts in which students can apply language while simultaneously developing higher-order thinking. However, Dhari and Maisarah (2025) found that classroom practice in many ESP settings continues to prioritize linguistic accuracy over reasoning, leaving critical thinking underdeveloped despite its importance as a core competency in twenty-first-century workplaces. However, ESP has particular pedagogical affordances that can support critical thinking when teachers move beyond language-focused instruction. Because ESP is organized around learners' academic, professional, or occupational purposes, classroom tasks can require students to interpret discipline-specific information, evaluate alternatives, justify decisions, solve authentic workplace problems, and communicate conclusions to particular audiences. For example, rather than simply learning the vocabulary and grammatical structures used in a professional text, students may be asked to assess competing proposals, identify risks in a technical report, or defend a recommendation using evidence. Such tasks position language as a tool for reasoning rather than merely an object of learning. This makes ESP potentially different from general EFL instruction, where communicative activities may develop fluency and accuracy without necessarily requiring sustained evaluation, inference, or decision-making. The gap identified by Dhari and Maisarah therefore suggests that the critical-thinking potential of ESP does not arise automatically from its vocational orientation; it depends on teachers' pedagogical decisions to transform professional language tasks into opportunities for analysis, evaluation, problem solving, and evidence-based judgment.

From a pedagogical perspective, teachers play a central role in transforming critical thinking from a curriculum objective into classroom practice. The effectiveness of ESP instruction is influenced not only by the learning materials selected but also by how teachers design questioning sequences, facilitate discussion, scaffold reasoning, encourage reflection, and connect language activities with authentic vocational contexts. Classroom activities that

appear communicative may not necessarily promote higher-order thinking if they emphasize procedural completion instead of analytical reasoning and reflective judgment. Li (2023) emphasized that teachers' conceptions of critical thinking substantially shape the instructional opportunities students receive, making teachers' classroom practices a critical focus for understanding how critical thinking is developed in language education.

Preliminary observation at a vocational high school in Cirebon revealed that students tended to be passive and highly dependent on teacher explanation, a pattern consistent with Hidayati (2024), who reported limited analytical and reflective engagement in Indonesian ESP classrooms more broadly. Ramadhani et al. (2025) further argued that such conditions reflect a broader phenomenon across Indonesian vocational education, where graduates continue to encounter challenges in navigating increasingly demanding educational and employment transitions. Although the importance of critical thinking in language learning has been widely acknowledged, comparatively little research has examined the concrete, everyday strategies that ESP teachers use to cultivate it, how those strategies are implemented and adapted across classes with different characteristics, and what obstacles teachers encounter in the process.

Previous studies have predominantly focused on measuring students' critical thinking outcomes or evaluating the effectiveness of particular instructional models, such as problem-based learning, inquiry-based learning, or project-based learning. While these studies have contributed valuable evidence regarding learning achievement, they provide relatively limited understanding of teachers' pedagogical practices during classroom implementation. Annunziata et al. (2023), in their systematic review of systematic reviews, likewise concluded that research has largely concentrated on instructional interventions and conceptualizations of critical thinking, whereas teachers' classroom enactment of these approaches remains comparatively underexplored. Questions concerning how teachers translate the abstract concept of critical thinking into everyday instructional activities, adapt their strategies to students with different vocational backgrounds and learning needs, and respond to practical constraints in ESP classrooms therefore remain insufficiently explored. Addressing these issues is important because teachers serve as the primary agents who mediate curriculum expectations into meaningful classroom experiences.

This study addresses that gap by investigating teachers' strategies in developing students' critical thinking in ESP classrooms, guided by two research questions: (1) What strategies do teachers use to develop students' critical thinking in ESP classrooms, and how are these strategies implemented and adapted across different ESP learning contexts? and (2) What challenges do teachers face when integrating critical thinking into ESP instruction? Facione (2020) defined critical thinking as purposeful, self-regulatory judgment involving interpretation, analysis, evaluation, inference, and explanation, while Živković (2021) demonstrated that critical thinking can be embedded as a concrete instructional objective in ESP through instructional practices such as Bloom's taxonomy-based questioning and authentic problem-solving activities. Building on these perspectives, the present study seeks to extend current understanding of how teachers operationalize critical thinking within vocational ESP instruction. The findings are expected to contribute to English Language Teaching (ELT) literature by providing empirically grounded insights into teachers' strategies, classroom implementation, and contextual challenges, while also offering practical implications for ESP teachers, curriculum developers, and vocational schools seeking to design learning environments that integrate language competence with higher-order thinking and workplace readiness.

METHOD

This study employed a qualitative case study design, following Creswell and Creswell (2018) and Yin (2018), because it aims to understand what teachers actually do in their ESP classrooms and how their strategies shape students' critical thinking in a natural, real-world setting. The case study approach was chosen for its capacity to examine a phenomenon in depth by drawing on multiple data sources, allowing for a richer and more contextually grounded understanding of classroom practice than a purely numerical measurement would provide.

The study was conducted at a Grade A-accredited vocational high school in Cirebon, Indonesia, involving two ESP teachers purposively selected because they taught English-related vocational courses and had experience integrating English with occupational contexts; one taught Light Vehicle Engineering (TKR) and the other Computer and Network Engineering (TKJ), providing two contrasting vocational settings for examining critical-thinking practices. One Grade X/XI class from each program was selected based on its relevance to ESP instruction. Each teacher was observed in three regular classroom sessions of approximately 90 minutes, resulting in six observations, followed by one structured interview of approximately 45–60 minutes. Observations focused on teacher questioning, task design, reasoning, problem solving, evaluation, and opportunities for students to justify responses, while interviews explored teachers' backgrounds, class profiles, lesson planning, implementation, and evaluation of critical-thinking strategies, with probing questions where necessary (McGrath et al., 2019; Elhami & Khoshnevisan, 2022). With informed consent, interviews were audio-recorded and transcribed verbatim, and transcripts were checked against the recordings. Ethical procedures included school permission, voluntary participation, confidentiality, pseudonyms, secure data storage, and exclusion of students' identifying information. The small purposive sample was intended to support in-depth contextual analysis rather than statistical generalization.

Data were analyzed using Braun and Clarke's (2006) six-phase thematic analysis. First, the researcher familiarized himself with the interview transcripts and classroom observation records by repeatedly reading the data and noting initial patterns. Second, relevant segments were systematically coded according to recurring pedagogical practices, instructional adaptations, and critical-thinking opportunities. Third, related codes were grouped into potential themes representing broader patterns across the data. Fourth, candidate themes were reviewed against the interview and observation evidence to ensure that they were internally coherent and adequately supported. Fifth, the themes were defined and named according to their central meaning and relevance to the research questions. Finally, the analysis was synthesized into an interpretive account supported by representative evidence. To facilitate cross-source comparison, interview data were coded as INT-TKR and INT-TKJ, while classroom observations were coded as OBS-TKR1–3 and OBS-TKJ1–3, indicating the teacher/program and observation session. These labels were used consistently in the findings to distinguish teachers' reported practices from practices directly observed in the classroom. Comparing the two sources also enabled the researcher to identify convergence and divergence between teachers' stated pedagogical intentions and their enacted classroom practices.

FINDINGS AND DISCUSSION

Findings

The findings are organized according to the two research questions that guided this study. Analysis of the interview and classroom observation data using Braun and Clarke's (2006) thematic analysis identified three interrelated themes describing the strategies teachers

employed to foster critical thinking and the ways these strategies were implemented and adapted across ESP classroom contexts. In addition, four themes emerged regarding the challenges teachers encountered when integrating critical thinking into classroom instruction. These findings demonstrate that the development of critical thinking in ESP classrooms depends not only on the selection of instructional strategies but also on teachers' ability to adapt those strategies to students' characteristics, vocational content, and classroom conditions. Tables 1–3 summarize the themes before each is discussed in detail.

3.1 Teachers' Strategies and Their Implementation and Adaptation in ESP Classes

Both teachers relied on a core set of strategies: teacher explanation (lecturing), questioning, individual writing tasks, presentation tasks, language scaffolding, and classroom adaptation, with group discussion or problem-based tasks appearing only occasionally as planned activities. Teacher explanation was the most visible strategy across observed lessons, used to introduce topics, clarify material, provide examples, and guide students before they completed writing or speaking tasks. Questioning was also frequently used, but it functioned mainly to check comprehension of the material, such as confirming understanding of vocabulary, text structure, or task instructions, rather than probing deeper reasoning through follow-up questions that required justification, comparison, or evaluation. Language scaffolding, seen through simplified explanation, limited code-switching, and vocabulary support, helped students overcome comprehension barriers, while classroom adaptation reflected teachers' responsiveness to differences in student ability and confidence between classes. Table 1 presents the three main themes and eight coded strategies identified in the data.

Table 1. Coded Themes and Strategies for Developing Students' Critical Thinking in ESP Classes

Main Theme	Coded Strategy / Pattern	Brief Evidence Summary
Teacher-Guided Instructional Support for Building Students' Basic Understanding	Lecturing / Teacher Explanation	Both teachers opened lessons with explanation, examples, and material clarification before students practiced the task; observation confirmed this as the most visible strategy across all classes (OBS-TKR1–3; OBS-TKJ1–3).
	Questioning for Checking Understanding	Teachers asked questions mainly to confirm comprehension of vocabulary, text structure, or instructions rather than to probe analysis or justification (OBS-TKR1–3; OBS-TKJ1–3).
	Language Scaffolding	Simplified explanation, repetition, and limited code-switching were used to help students overcome English comprehension difficulties (OBS-TKR1–3; OBS-TKJ1–3).
	Classroom Adaptation	Teachers adjusted explanation and support according to students' ability levels and confidence between classes (OBS-TKR1–3; OBS-TKJ1–3).
Communicative Classroom Tasks for Encouraging Students' Written and Oral Participation	Personal Writing Task	Students wrote autobiography (TKR/TKJ Grade XI) or recount text (Grade X) individually; tasks were personal and descriptive rather than analytical (OBS-TKR1–3; OBS-TKJ1–3).
	Presentation Task	Students presented their written work orally, practicing organization of ideas and spoken participation, but without required justification or argument (OBS-TKR2; OBS-TKJ2–3).

Intended Collaborative and Problem-Oriented Strategies for Promoting Critical Thinking	Group Discussion as a Planned Strategy	Mentioned by both teachers in interviews (e.g., balanced grouping, role play, simulation) but not clearly observed during the actual lessons (INT-TKR; INT-TKJ).
	Problem-Based Task	Referred to in interview data (project-based learning, vocational cases) but not visibly implemented in the observed classroom sessions (INT-TKR; INT-TKJ).

Regarding how these strategies were implemented, the data revealed a structured and largely consistent lesson sequence across classes. Both teachers typically introduced the topic, explained the material with examples, guided students through a writing task, and asked students to present their work. Similar task formats, such as autobiography and recount writing, were maintained across TKR and TKJ classes. The TKR teacher explained, “I usually start with an explanation and examples, then students do the task, and after that they present their work” (INT-TKR), while the TKJ teacher stated, “The activities are generally the same; I explain the material first, then they work on the task and present it” (INT-TKJ). Classroom observations confirmed this consistency across the observed sessions (OBS-TKR1–3; OBS-TKJ1–3).

At the same time, teachers adapted their instructional delivery to students’ readiness, English proficiency, and classroom conditions. The TKR teacher noted, “In TKR, I have to explain it several times and use simpler language because some students need more time to understand” (INT-TKR). This was consistent with observations showing slower pacing, repetition, and more intensive guidance in TKR, whereas TKJ generally followed a smoother instructional pace (OBS-TKR1–3; OBS-TKJ1–3). Teachers also adjusted their language choice and monitored student progress during tasks, although monitoring focused mainly on task completion rather than the quality of students’ reasoning (OBS-TKR1–3; OBS-TKJ1–3). Table 2 presents the two main themes and eight coded implementation and adaptation patterns identified in the data.

Table 2. Coded Themes and Patterns of Implementation and Adaptation across Classroom Contexts

Main Theme	Coded Strategy / Pattern		Brief Evidence Summary
Structured Implementation and Consistent Task Management across Classroom Contexts	Organized Lesson Sequencing		Both teachers followed a similar sequence: introduction, explanation, guided practice, and presentation, across all observed classes (OBS-TKR1–3; OBS-TKJ1–3).
	Task Format Consistency		Task types (autobiography, recount text) remained the same regardless of students' vocational specialization (OBS-TKR1–3; OBS-TKJ1–3).
	Assessment Consistency	Criteria	Teachers reported using the same assessment criteria across classes, with limited differentiation for critical thinking indicators (INT-TKR; INT-TKJ).
Responsive Adaptation to Students' Readiness and Learning Difficulties	Pace Adjustment		TKR classes received a slower, more repeated pace of explanation; TKJ classes followed a smoother, more detailed pace (OBS-TKR1–3; OBS-TKJ1–3).
	Guidance Adjustment	Intensity	More intensive, repeated guidance was given in classes where students showed greater difficulty (OBS-TKR1–3).
	Language Adaptation	Choice	Teachers used simplified English or limited Indonesian depending on

		students' comprehension needs (OBS-TKR1-3; OBS-TKJ1-3).
Grouping Adaptation		Mentioned as an intended adaptation in interviews, but observation showed tasks were completed individually rather than in groups (INT-TKR; INT-TKJ; OBS-TKR1-3; OBS-TKJ1-3).
Student Monitoring	Progress	Teachers walked around the class to check progress and give brief feedback, focused mainly on task completion rather than reasoning quality (OBS-TKR1-3; OBS-TKJ1-3).

The findings indicate that both teachers implemented a structured and relatively consistent instructional pattern across the two vocational contexts. Lessons generally followed the sequence of introduction, explanation, guided practice, and presentation, while task formats such as autobiography and recount writing remained largely unchanged across TKR and TKJ classes (OBS-TKR1-3; OBS-TKJ1-3). The teachers also reported using comparable assessment criteria, with limited explicit differentiation for critical-thinking indicators. As the TKR teacher explained, “I usually use the same basic criteria for the students. I look at their language, the content, and whether they complete the task.” (INT-TKR). This consistency provided classroom stability, but it also suggests that vocational specialization had limited influence on task design and assessment. In other words, although the classes represented different occupational fields, the instructional structure remained predominantly general-English oriented rather than being substantially differentiated according to vocational demands.

At the same time, the teachers demonstrated responsive adaptation at the level of instructional delivery. TKR students received slower explanations, more repetition, and more intensive guidance, while TKJ students generally worked with a smoother pace and more detailed explanations (OBS-TKR1-3; OBS-TKJ1-3). Teachers also simplified their English and occasionally used Indonesian when students experienced comprehension difficulties. The TKR teacher noted, “For TKR students, I need to explain more slowly and repeat the instructions because they need more time to understand.” (INT-TKR). Grouping was mentioned by both teachers as a possible adaptation, but the observed tasks were predominantly completed individually (INT-TKR; INT-TKJ; OBS-TKR1-3; OBS-TKJ1-3). Teachers regularly monitored student progress and provided brief assistance, although this monitoring was mainly concerned with task completion rather than the quality of students’ reasoning (OBS-TKR1-3; OBS-TKJ1-3). Thus, adaptation was evident primarily in how teachers delivered instruction, rather than in how cognitively demanding or vocationally relevant the learning tasks were.

3.2 Challenges in Integrating Critical Thinking into ESP Instruction

Several interconnected challenges emerged in relation to integrating critical thinking into ESP classes. Students' limited English comprehension constrained their ability to engage with more demanding analytical tasks, while a limited alignment between classroom tasks and students' specific vocational contexts reduced the authenticity and relevance of the reasoning required. Teacher-centered instruction, reflected in the dominance of lecturing, restricted opportunities for students to initiate analysis or debate, and uneven student participation meant that only some students responded actively while others remained passive throughout the lesson. Low English-speaking confidence further discouraged students from articulating and defending their ideas orally. A further set of challenges concerned feedback, reflection, and revision: students frequently gave answers without clear reasons, examples, or justification;

teachers offered limited critical feedback that could push students to strengthen or reconsider their reasoning; and individual writing and presentation tasks were rarely followed by structured peer response or guided revision. Table 3 presents the four main themes and eight coded challenges identified through the thematic analysis.

Main Theme	Coded Strategy / Pattern			Brief Evidence Summary
Language and ESP Relevance Barriers in Vocational English Learning	Language	Comprehension		Both teachers identified students' limited vocabulary, grammar, and English comprehension as the most basic obstacle to critical engagement (INT-TKR; INT-TKJ). Classroom observations also showed frequent teacher explanation and language support to overcome comprehension difficulties (OBS-TKR1-3; OBS-TKJ1-3).
	Limited Alignment	ESP	Field	Observed tasks (autobiography, recount text) supported general English practice but were not clearly connected to automotive or computer-network vocational content (OBS-TKR1-3; OBS-TKJ1-3).
Teacher-Centered and Low- Analysis Classroom Practice	Teacher-Centered Instruction Dominance			Lessons were mostly controlled by teacher explanation, limiting students' opportunities to initiate analysis or debate (OBS-TKR1-3; OBS-TKJ1-3).
	Limited Opportunities		Analysis	Tasks emphasized completion of writing/presentation rather than analysis, evaluation, or argument construction (OBS-TKR1-3; OBS-TKJ1-3).
Student Participation and Speaking Constraints	Uneven Participation		Student	More confident students dominated interaction while lower-proficiency students remained passive or waited to be prompted (OBS-TKR1-3; OBS-TKJ1-3).
	Low Speaking Confidence			Students' limited confidence in spoken English discouraged them from articulating and defending their ideas orally (INT-TKR; INT-TKJ).
Feedback, Reflection, and Revision Constraints in Critical Thinking Development	Limited Critical Feedback			Feedback focused mainly on grammar, vocabulary, and sentence-level accuracy rather than reasoning, evidence, or argument quality (OBS-TKR1-3; OBS-TKJ1-3).
	Limited Revision	Reflection	and	Writing and presentation were treated as final products; no structured follow-up required students to revise or rethink their responses (OBS-TKR1-3; OBS-TKJ1-3).

The findings indicate that critical-thinking development in the observed ESP classrooms was constrained by interconnected linguistic, pedagogical, and participation-related factors. Both teachers identified students' limited vocabulary, grammar, and English comprehension as major barriers to critical engagement (INT-TKR; INT-TKJ). The TKR teacher explained: "Most of the students still have difficulty with vocabulary and understanding English instructions, so I have to explain things several times." (INT-TKR). Classroom observations supported this account, showing frequent simplification, repetition, and teacher guidance to overcome comprehension difficulties (OBS-TKR1-3; OBS-TKJ1-3). However, the observed autobiography and recount tasks were primarily oriented toward general English practice rather than automotive or computer-network content (OBS-TKR1-3; OBS-TKJ1-3). Thus, students faced not only linguistic constraints but also limited opportunities to use English for vocationally situated reasoning.

These conditions were reinforced by teacher-centered interaction and limited opportunities for sustained analysis. Lessons were largely organized around teacher explanation, guided practice, and presentation, while students had few opportunities to initiate discussion, evaluate alternatives, or justify their positions (OBS-TKR1–3; OBS-TKJ1–3). Teachers also reported that students' limited confidence in spoken English affected their participation. The TKJ teacher noted: "Some students understand the material, but they are hesitant to speak because they are afraid of making mistakes in English." (INT-TKJ). This was consistent with observations showing that more confident students tended to participate more actively, whereas lower-proficiency students often waited for teacher prompts (OBS-TKR1–3; OBS-TKJ1–3). The interaction between language proficiency and classroom structure therefore appeared to reinforce unequal participation.

The limitation was also evident in feedback and follow-up activities. Teacher feedback focused mainly on grammar, vocabulary, pronunciation, and task completion rather than reasoning, evidence, or argument quality (OBS-TKR1–3; OBS-TKJ1–3). The TKR teacher described this emphasis by stating: "Usually I focus first on whether their sentences are correct and whether they finish the task. We do not always have enough time to discuss why they give a particular answer." (INT-TKR). Similarly, writing and presentation tasks were generally treated as completed products, with limited structured opportunities for students to revise or rethink their responses (OBS-TKR1–3; OBS-TKJ1–3). Taken together, the evidence suggests that the problem was not simply students' lack of critical-thinking ability. Rather, the observed classroom conditions provided limited opportunities for students to enact critical thinking through vocationally meaningful English tasks, revealing a gap between the potential of ESP to support occupational reasoning and the predominantly language-focused practices observed in these classrooms.

Discussion

The findings suggest that the strategies teachers used can be characterized as teacher-guided, communicative, and scaffolded. Harmita et al. (2022) explain that learning strategies include the models, methods, and ways of organizing teaching and learning activities used to achieve instructional goals, and lecturing can be considered part of teachers' strategies in this sense. However, Facione (2020) emphasizes that critical thinking requires interpretation, analysis, evaluation, inference, and self-regulation, processes that were not strongly visible in the observed lessons because students mostly listened, followed instructions, and completed tasks. This finding is consistent with Li (2023), who found that EFL teachers may understand the importance of critical thinking, yet this understanding is not always clearly reflected in classroom practice.

Rosalina et al. (2020) found that teacher questioning in ESP classrooms can support more meaningful student responses when questions explicitly invite explanation, suggesting that the questioning observed in this study had not yet been fully directed toward that end. Likewise, Qadir and Yousofi (2021) found that explicit scaffolding oriented toward inference and evaluation, rather than comprehension alone, more strongly supports EFL learners' critical thinking; the language scaffolding and classroom adaptation observed here served comprehension well but had not yet been extended toward that more demanding form of scaffolding. Students were given opportunities to write and present, but were not consistently required to analyze ESP-related cases, evaluate information, justify opinions with evidence, or solve vocational problems.

Concerning implementation and adaptation, the pattern indicates that adaptation in the observed classrooms operated primarily at the level of instructional delivery rather than task

design. Tanjung and Ashadi (2019) note that differentiated instruction is needed to accommodate individual differences among EFL learners, which supports the interpretation that the observed pace and guidance adjustments reflect sound responsiveness to student readiness. However, the underlying tasks, assessment criteria, and expected products remained largely uniform across classes with markedly different vocational orientations (automotive engineering versus computer and network engineering), meaning that ESP-specific, field-relevant task variation and critical-thinking-oriented differentiation, as emphasized by Dou et al. (2023) and Mao and Zhou (2024) in relation to needs-based ESP course design, were not strongly developed. Consequently, while students in different classes received different levels of support, they were not necessarily challenged with tasks calibrated to elicit correspondingly different depths of reasoning.

The challenges identified echo Poedjiastutie's (2017) observation that ESP teaching should be more directly connected to workplace communication demands; the weak alignment between classroom tasks and students' vocational fields suggests this connection remains underdeveloped in practice. Teacher-centered instruction and uneven participation further indicate that the classroom interaction structure itself constrained opportunities for students to initiate analysis, debate, or extended reasoning, consistent with the broader concern that comprehension-oriented instruction can crowd out space for higher-order thinking.

The limitations in feedback, reflection, and revision are particularly consequential for critical thinking development. Morris et al. (2021) note that formative assessment and feedback should support learning improvement, which implies that feedback focused mainly on grammar and sentence-level accuracy, as found here, leaves reasoning and argument quality largely unaddressed. Mann and Walsh (2017) suggest that reflection helps teachers connect theory with practice and make informed instructional decisions, which implies that reflective practice should extend to students' own learning activities as well, an aspect that remained underdeveloped in the observed lessons. Alzubi et al. (2024) further found that collaborative and peer-based interaction can strengthen EFL students' engagement and language development, suggesting that the absence of structured peer response after writing and presentation tasks represents a missed opportunity to build reflective, dialogic reasoning.

CONCLUSION

This study investigated the strategies ESP teachers use to develop students' critical thinking in vocational high school classrooms and how these strategies are implemented and adapted across different classes, as well as the challenges teachers encounter in this process. The findings show that teachers relied on a combination of teacher explanation, questioning for comprehension, writing and presentation tasks, language scaffolding, and classroom adaptation, which together functioned as a teacher-guided, scaffolded instructional approach that supported students' comprehension, task completion, language practice, and classroom participation, but was not yet strongly directed toward the deeper analytical, evaluative, and justificatory processes that constitute critical thinking. Implementation and adaptation were found to occur mainly through adjustments in instructional delivery, such as pace, guidance intensity, and language choice, rather than through differentiated, field-relevant, or critical-thinking-oriented task design, while teachers also faced a cluster of interrelated challenges, including students' limited English proficiency, weak alignment between tasks and vocational contexts, teacher-centered instruction, uneven participation, low speaking confidence, and constrained opportunities for critical feedback, reflection, and revision. These results indicate that teachers' strategies contributed more strongly to comprehension and confidence building than to higher-order reasoning, and that the intended connection between ESP learning and students'

vocational fields was not fully realized in the observed lessons, suggesting that strengthening critical thinking in vocational ESP instruction requires more consistent use of analytical questioning, structured discussion, problem-based tasks, and reasoning-based feedback explicitly connected to students' vocational fields, with implications for how ESP teacher training and curriculum design in vocational schools are approached.

DECLARATION OF AI AND AI-ASSISTED TECHNOLOGIES

The authors declare that ChatGPT (GPT-5.6, OpenAI) was used for language editing, paraphrasing, and improving manuscript clarity. All AI-generated outputs were reviewed and edited by the authors, who take full responsibility for the final content. No AI was used to generate, alter, or fabricate data, analyses, figures, tables, or references.

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