

Critical writing patterns and learning strategies among vocational college students: Evidence from thesis writing

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ABSTRACT

Enhancing critical writing proficiency remains a significant challenge for vocational college students because their educational settings prioritize practical and technical skills over theoretical learning. This study explores the gap in understanding how vocational learners express critical thinking in academic writing. Based on an analysis of students' theses and reflective statements, the study identifies unique patterns in students' articulation, justification, and evaluation of concepts in their writing. The data for this research were derived from 22 final thesis reports submitted by students of 12 D4 Study Programs at The State Polytechnic of Malang. Additionally, statements from 10 students were collected regarding their strategies for critical writing when preparing their thesis reports. The research instruments included a guide for analyzing critical writing skills based on the substantive writing skills proposed by Paul & Elder (2019) and an interview guide. The results indicate that, although vocational students exhibit analytical thinking and contextual reasoning, they often struggle to synthesize theoretical perspectives and formulate coherent arguments in thesis introductions and literature reviews. The findings also highlight that students independently seek study ideas or assistance from supervisors, often conducting field surveys. However, challenges arise in the areas of thesis introduction and literature review, emphasizing a need for a deeper understanding of core critical writing concepts. Notably, vocational students tend to prioritize practical thinking and technical abilities. The findings of this study emphasize both the strengths and challenges in vocational students' critical writing skills. The identified patterns in their writing behavior can inform potential interventions aimed at enhancing their proficiency in critical writing. The study adds to the larger discussion on academic literacy by making it clear how critical writing development is different in vocational education settings.

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INTRODUCTION

Writing abilities are essential for students' academic and professional growth, serving as both a means of communication and a reflection of cognitive aptitude (Budhyani & Angendari, 2021). Students transform thoughts and experiences into organized written forms, a process that requires the integration of cognitive and linguistic abilities (Huber et al., 2020). Prior research consistently underscores that robust writing proficiency enhances academic performance and future professional success, facilitating the advancement of knowledge, the cultivation of reflective capacity, and the development of critical and problem-solving abilities (Chan & Lee, 2021; Nugroho et al., 2024; Patriot & Anggraini, 2025).

Students in vocational colleges require more focused attention in the development of academic writing skills. This aligns with Barus et al. (2025) who explain that many vocational

students face challenges in both reading and writing. This difficulty arises because they often lack exposure to writing theories and practices comparable to those of university students (Teng et al., 2022). The curriculum in vocational colleges differs from that of universities, with the primary goal of vocational colleges being to prepare students for job-oriented skills to support the formation of skilled workers for the industry (Rahayu, 2021). The emphasis on mastering practical skills is 60%, while theory learning constitutes 40%. This aligns with Organisation for Economic Co-operation and Development (2023) that curricula in almost all vocational colleges place less emphasis on training students in theory and writing skills and instead focus more on helping them master job-oriented skills. This is because the primary educational goal of vocational colleges is to produce a skilled workforce for society. Nevertheless, academic writing remains crucial for completing final assignment reports, for obtaining a Diploma 4 degree, and for advancing in their careers. In the context of vocational education, academic writing skills are particularly important because students are expected not only to master technical competencies but also to communicate ideas effectively in academic and professional settings (Siregar et al., 2022).

Thesis writing requires linguistic proficiency and critical thinking skills, as students must choose pertinent topics, assess credible sources, develop research questions, and systematically analyze and interpret data (Lestari & Wijayati, 2021; Putera et al., 2023; Yamin & Purwati, 2020). Critical writing necessitates the synthesis of varied literature, the construction of logical arguments substantiated by evidence, and the evaluation of theories rather than their mere description. Nevertheless, accumulating evidence indicates that students frequently have difficulty integrating references cohesively, structuring the background section, identifying pertinent prior research, and selecting theories for instrument development.

These findings align with prior studies that identify persistent difficulties in critical writing: insufficient confidence in articulating personal viewpoints (Lestari & Wijayati, 2021), challenges in idea development, and logical paragraph composition (Pu & Evans, 2019), inadequate analysis and interpretation in the discussion section (Islamiyah & Suyanti, 2020), diminished curiosity, and ambiguous writing guidelines Widodo et al. (2020), feeble theoretical and argumentative construction (Kebede & Kitila, 2023), obstacles in paraphrasing theoretical approaches, and difficulties in establishing theoretical frameworks, assessing credible sources, and integrating concepts (Heriyudananta, 2021; Wahyuni & Inayati, 2020). In thesis proposal writing, numerous students encounter difficulties in articulating research concerns, distinguishing between conceptual and operational definitions, and effectively inferring and integrating sources (Susetyo & Noermanzah, 2020).

Nonetheless, research on the challenges of academic writing among vocational students has predominantly been broad, focusing on general writing skills rather than analyzing the patterns of critical writing in thesis composition. Moreover, investigations of vocational students' perceptions of critical writing learning strategies are notably scarce, despite the distinct learning characteristics of vocational contexts compared to academic institutions. Therefore, it is essential to investigate the emergence of critical writing patterns among vocational students in thesis writing and their interpretation of the critical writing learning methodologies provided to them. As a result, research on both critical writing patterns in thesis writing and students' opinions of critical writing teaching methodologies adds a new dimension to the literature on vocational education.

Based on this background, this research aims to describe (1) the critical writing patterns of vocational students in thesis writing and (2) vocational students' perceptions of critical writing learning strategies. The research focuses on vocational students who often prioritize technical and practical skills and may require extra effort to develop critical writing skills. Therefore, the emphasis on professional skills development may impact students' ability to write critically. Consequently, research on the critical writing skills of vocational students can help identify specific challenges and opportunities in this context, as well as factors that may facilitate or hinder the future development of these skills. Selecting vocational students as the research subjects for critical thesis writing skills can provide significant contributions to education and career fields, as well as provide a broader understanding of critical writing skills in the context of vocational education.

METHOD

This study employed a qualitative research design using content analysis and descriptive methods to explore critical writing patterns in vocational students' thesis reports and to investigate their perceptions of critical writing strategies during thesis preparation. The study focused on students from D4 Study Programs at The State Polytechnic of Malang, Indonesia. A purposive sampling technique was employed because the selection of participants and documents required individuals with direct experience in thesis writing and exposure to academic writing practices.

The first dataset consisted of 22 final thesis reports submitted during the 2023/2024 academic year. The documents were selected based on the following inclusion criteria: (1) the thesis was written individually, (2) written in Indonesian, (3) available in full-text format, and (4) suitable for discourse structure analysis. Incomplete theses or collaboratively written reports were excluded from the analysis. The second dataset involved 10 vocational students who had completed their thesis defenses and voluntarily agreed to participate in semi-structured interviews. The participants were selected based on their experience in applying critical writing strategies during the thesis-writing process and their willingness to provide reflective insights regarding their academic writing experiences. The purpose of participant selection was not to achieve statistical representation but to obtain rich and in-depth qualitative information relevant to the research objectives.

To analyze critical writing patterns in thesis writing, the study employed a qualitative content analysis framework adapted from [Oliveras et al. \(2013\)](#) and Paul and Elder's framework of substantive critical writing skills. The analysis focused on several dimensions of critical writing, including paraphrasing, explanation, argument construction, inference, analysis, evaluation, and synthesis. The 22 thesis reports served as the primary data source for identifying how students articulated arguments, integrated sources, and demonstrated critical reasoning in academic writing.

The coding process was conducted manually by two researchers to maintain analytical consistency and credibility. Prior to the main coding process, both coders discussed the coding categories and analyzed several sample excerpts collaboratively to establish a shared understanding of the analytical framework. During the analysis, disagreements in coding interpretation were resolved through discussion and repeated examination of the data until consensus was reached. The coded excerpts were subsequently categorized and interpreted to identify recurring patterns of critical writing practices among vocational students.

To explore students' perceptions of critical writing strategies, semi-structured interviews were conducted with the 10 selected participants. The interview protocol was designed to explore students' experiences in selecting research topics, searching for literature, paraphrasing sources, responding to supervisor feedback, and managing difficulties during thesis writing. Each interview lasted approximately 30–45 minutes and was conducted based on participants' availability. Prior to data collection, participants received explanations regarding the study objectives, interview procedures, confidentiality measures, and their rights as research participants. Written informed consent was obtained before the interviews commenced, and participants were informed that they could withdraw from the study at any stage without consequences.

To minimize social desirability bias, participants were encouraged to provide open and honest responses, with the researchers emphasizing that there were no right or wrong answers. All interviews were audio-recorded with participants' permission to ensure accurate data capture and transcription. Field notes were also taken during the interview sessions to document contextual observations and emerging reflections that supported the interpretation of the data.

The data analysis process followed the stages of qualitative content analysis proposed by [Creswell \(2016\)](#), namely data preparation, coding, category generation, pattern construction, interpretation, and validation. Indicators identified from the thesis reports were grouped into seven macro critical writing skills: paraphrasing, explaining, presenting arguments, drawing inferences, analyzing, evaluating, and synthesizing. The analysis emphasized the overall fulfillment of each macro skill rather than isolated indicators to ensure interpretive clarity and analytical coherence.

Furthermore, the interview data were analyzed using Reflexive Thematic Analysis following the procedures proposed by [Nowell et al. \(2017\)](#). After familiarization with the transcripts, the researchers generated inductive codes to identify recurring ideas, experiences, and perceptions

related to critical writing practices. Coding and categorization were conducted iteratively using Google Docs to organize and annotate relevant excerpts. Themes were refined continuously through reflective discussion among the researchers to ensure conceptual consistency and alignment with the research objectives.

To enhance the trustworthiness of the findings, several validation strategies were employed, including member checking, peer debriefing, and coder triangulation. Member checking was conducted by confirming several interpreted findings with participants to ensure representational accuracy. Peer debriefing was carried out through discussions with academic colleagues experienced in qualitative research and academic writing studies. In addition, detailed documentation of coding procedures, analytical decisions, and theme development was maintained to support transparency and dependability.

Ethical considerations were maintained throughout the study. Participant identities and thesis document information were anonymized using coded identifiers to protect confidentiality. All interview recordings, transcripts, and research files were securely stored in encrypted digital folders accessible only to the research team. The study procedures complied with institutional ethical standards for qualitative educational research.

RESULTS AND DISCUSSION

The findings of this study describe the critical writing skills of vocational students in their theses and explore the cognitive strategies employed in their thesis writing as follows.

Critical Writing Skills of Vocational Students in Preparing a Thesis

Table 1. Results of the Discourse Analysis of Thesis Reports

Critical Writing Skill	Total Indicators	Fulfilled (n/%)	Not Fulfilled (n/%)	Interpretation
Paraphrasing	4	10 (45.5%)	12 (54.5%)	More than half of the students struggled to revise sources meaningfully
Explaining	2	41 of 44 responses = 93.2%	3 of 44 responses = 6.8%	Students can state results and present concepts, but with uneven depth
Presenting Arguments	5	31 of 110 = 28.2%	79 of 110 = 71.8%	Argumentation is the most challenging skill
Drawing Inferences	2	28 of 44 = 63.6%	16 of 44 = 36.4%	The majority can infer conclusions, but the evidence supporting the conclusions remains weak
Analyzing	2	28 of 44 = 63.6%	16 of 44 = 36.4%	Students can identify arguments but struggle to compare perspectives
Evaluating	3	3 of 66 = 4.5%	63 of 66 = 95.5%	Critical assessment of viewpoints is generally absent
Synthesizing	2	16 of 44 = 36.4%	28 of 44 = 63.6%	Students rarely integrate arguments into cohesive reasoning

The findings demonstrate that vocational students can effectively summarize and build on material. However, they still experience obstacles in advanced cognitive abilities in academic writing, including synthesizing, evaluating, and constructing strong arguments. The skills that appear to have developed significantly are the ability to explain and analyze. Most students can present accurate statements of analysis and inference and support their claims with relevant examples. These results are consistent with research (Romero-Díaz de la Guardia et al., 2024; Yasdin et al., 2021), which shows that critical thinking skills are evident in how students organize their ideas descriptively and reflectively, based on the data they obtain.

Nonetheless, several essential writing skills seem to be deficient. The study's results demonstrate that vocational students may effectively summarize and elaborate on material. However,

they still experience obstacles in advanced cognitive abilities in academic writing, including synthesizing, evaluating, and constructing strong arguments.

The most concerning finding is that some advanced critical writing skills are completely absent, especially in evaluating opposing views and presenting counterarguments. Students rarely criticize the weaknesses of arguments or express disagreement with logical reasoning. They more often passively accept information without critical evaluation (Alexander et al., 2023). The study found that the main weakness of students lies in their inability to frame counterarguments and perform critical analysis optimally (Tarchi & Villalón, 2021).

Students tend to only select and cite sources that align with their opinions, ignoring conflicting sources. This reinforces confirmation bias (myside bias) and hinders the development of deep two-sided thinking (Al Bulushi, 2022; Singh et al., 2025). Therefore, the use of techniques such as argument mapping, online group debates, and explicit instructions on the importance of counterarguments can improve critical thinking skills and argumentative writing abilities (Chen et al., 2024; Rousseau & van Gelder, 2025; Sandra et al., 2024).

Although students attempt to paraphrase sources, most only rewrite the text at the lexical level without substantial structural transformation. In line with this, Festas et al. (2022) and Mukasa et al. (2023) found that students tend to copy without citing sources, copy while citing sources, paraphrase in patchwork form, cite sources but use almost identical text, and present conclusions as their own. This shows that students still have difficulty performing deep semantic paraphrasing and tend to rely on surface rewriting or patchwriting (Alvi et al., 2021). Thus, providing explicit instructions and using direct paraphrasing guidelines has been proven to improve the quality of students' paraphrasing, both in word choice and sentence structure (Yahia & Egbert, 2023). Furthermore, teaching plagiarism detection, paraphrasing techniques, and citation skills in a practical manner has been proven to reduce the frequency of plagiarism and improve students' paraphrasing skills (Miranda-Rodríguez et al., 2024).

Weaknesses are also evident in students' synthesis skills, as they often struggle to integrate diverse sources into a cohesive argument. Many simply summarize or copy information without deep integration (Cuevas et al., 2024; Singh et al., 2025). Synthesis skills are highly dependent on critical reading and source analysis skills. Studies show that students with low critical analysis skills also tend to fail to construct counterarguments and integrate sources (Simanjuntak et al., 2025). Therefore, explicit instructions, collaborative exercises, and the use of rubrics or guidelines can improve the quality of synthesis, especially in the aspects of argument identification and integration (Cuevas et al., 2024; Granado-Peinado et al., 2023; Nikbakht & Miller, 2023). Furthermore, limitations in the ability to draw inferences were identified, particularly when conclusions must be supported by explicit, logical evidence. Weak evaluative reasoning prevents students from distinguishing the quality of evidence or constructing strong data-based arguments (List, 2024; Wan, 2023).

Students have not criticized the weaknesses of arguments or expressed disagreement with logical reasoning. They more often accept information passively without critical evaluation (Alexander et al., 2023). Studies have found that the main weakness of students lies in their inability to frame counterarguments and perform critical analysis optimally (Tarchi & Villalón, 2021). Students tend to only select and cite sources that align with their opinions, ignoring conflicting sources. This reinforces confirmation bias (myside bias) and hinders the development of deep two-sided thinking (Al Bulushi, 2022). Therefore, the use of techniques such as argument mapping and explicit instructions on the importance of counterarguments can improve critical thinking skills and argumentative writing abilities (Chen et al., 2024; Rousseau & van Gelder, 2025; Sandra et al., 2024).

Vocational Students' Perceptions of Critical Writing Learning Strategies for Research Report Preparation

Thematic analysis generated eight categories related to students' critical writing strategies during thesis preparation. Overall, students demonstrated positive attitudes toward completing their theses; however, their understanding of critical writing tended to remain procedural rather than analytical. As a result, critical writing was often reduced to compliance with academic writing conventions rather than being understood as a process of evaluation, reasoning, and argument construction. In selecting research topics and searching for literature, students relied heavily on

Google Scholar; nevertheless, they frequently experienced difficulties in narrowing research problems due to cognitive overload and limited reading habits.

Writing challenges were primarily identified in the introduction and literature review sections, indicating difficulties in integrating theoretical concepts into the research context. Supervisor feedback played an essential role in supporting students' progress, whereas unclear or ambiguous feedback often resulted in repeated revisions. In addition, students reported several self-regulation issues, such as procrastination and fear of revision, although some attempted to overcome these challenges through strategies such as scheduled writing and extensive reading. Furthermore, paraphrasing practices were predominantly lexical or tool-based rather than meaning-oriented, suggesting limited conceptual engagement with source materials. Collectively, these findings indicate that vocational students are generally motivated to complete their theses but still lack epistemic awareness of academic argumentation, highlighting the need for explicit instruction and structured scaffolding in critical writing.

Table 2. Thematic Analysis of Critical Writing Strategies by D4 Students in the Process of Writing Thesis Reports

Theme	Key Findings	Sample Evidence (Condensed Excerpts)	Implication
Perception of Critical Writing	Students interpret critical writing as fulfilling structure and completeness rather than argumentation and evaluation	"Critical writing means completing each section properly and in detail."	Indicates limited epistemic understanding of critical writing; emphasis remains procedural instead of analytical.
Topic Selection & Literature Search	Students struggle to narrow research problems and filter information despite the use of Google Scholar	"Too many issues in society make it difficult to decide on a topic"; "confused determining specific problems."	Students need guidance in formulating research questions and in screening the literature for relevance and alignment with the research focus.
Writing Process	Introduction and literature review are perceived as the most difficult chapters	"The most difficult part is the introduction."; "Choosing appropriate theories is challenging."	Difficulties reflect gaps between theory and the research context rather than technical writing issues alone.
Role of Feedback	Supervisor's feedback strongly supports writing progress	"Feedback helps open my mind"; "examples make revisions easier."	High dependence on external feedback; the quality of feedback significantly determines writing success.
Revision	Ambiguous feedback triggers repeated revisions and uncertainty	"Hardest part is when feedback feels unclear... must ask many times."	Need for more explicit revision guidelines and structured rubrics to reduce confusion.
Awareness & Self-Regulation	Students experience procrastination, fear of repeated revisions, and pressure to make their study acceptable	"Lazy to write because there will be many revisions"; "the background must satisfy the supervisor."	Low self-regulation and writing confidence; emotional factors influence writing progress.
Strategies to Overcome Challenges	Students implement writing routines, read other theses, and consult supervisors frequently	"Forcing myself to write every day," "reading others' theses helps."	Strategies exist but remain low-level; students have not yet applied higher-order academic writing strategies (e.g., analysis and synthesis).
Paraphrasing Practices	Paraphrasing focuses mainly on synonym replacement and online tools to avoid similarity detection	"Changing words into synonyms"; "using Quillbot/Wordtune."	Paraphrasing is mechanistic rather than meaning-based; it does not support argument development or deeper comprehension.

Overall, students show positive attitudes toward thesis completion, yet their conceptual understanding of critical writing remains limited. Students primarily describe critical writing in terms of compliance with structure, completeness, detail, and citations, rather than in terms of evaluation, synthesis, and reasoning. Vocational students embarking on thesis preparation encounter varied perceptions regarding the adoption of critical writing learning strategies. To begin with, some

students may require assistance in understanding the fundamental concepts and principles of critical writing.

This difficulty arises due to a lack of understanding of these strategies (López et al., 2023; Lv et al., 2022) or their unfamiliarity with the critical thinking approach, contributing to a perceived complexity (López et al., 2023). Practical and technically-oriented vocational students constitute another group with differing perceptions, often deeming critical writing strategies less relevant to their pragmatic career objectives (Siregar et al., 2022). This perspective may stem from limited exposure to the ways in which critical writing can enhance analytical skills and effective communication within their professional domains.

Although students actively search for research topics via Google Scholar and consult their supervisors, they report difficulty narrowing down their problems due to limited conceptual understanding and insufficient reading. The challenge in generating ideas is exacerbated by the overwhelming volume of available online information. Similar learning barriers have also been reported among vocational students whose curricula place greater emphasis on practical competencies than on epistemic and academic discourse (Alkema et al., 2023), which makes the current findings consistent with broader trends in vocational education.

From a writing-process perspective, the introduction and literature review proved the most difficult components. Students were unsure about selecting relevant theories, developing arguments, and avoiding high Turnitin similarity. Eight students practiced peer feedback before supervisor consultations, indicating initiative but limited metacognitive control. This reliance is consistent with prior evidence showing that students with limited writing self-regulation tend to depend more heavily on teacher feedback than on self-evaluation strategies (Zhu et al., 2024).

Supervisor feedback was found essential to students' writing progress, particularly when it provided clear direction and concrete examples to address their problems. Continuous feedback from instructors on students' critical writing abilities is an excellent tool for long-term progress (Ciampa & Wolfe, 2019). Revisions were consistently made in response to supervisor suggestions, while six students relied on digital tools to check diction, grammar, or paraphrasing. While such tools help reduce surface-level linguistic errors, they do not strengthen higher-order reasoning, a limitation also observed in recent research showing that AI-supported paraphrasing prevents similarity but does not enhance argument integration or conceptual synthesis (Vandermeulen et al., 2024; Yu, 2021). Furthermore, the learning environment plays a pivotal role in shaping students' perceptions. Environments fostering and endorsing critical writing strategies generate positive attitudes among students, highlighting the approach's importance and benefits. Conversely, a lack of emphasis on these strategies can diminish students' motivation and confidence to adopt such practices.

In managing the writing process, students experienced barriers such as procrastination, uncertainty in composing the research background, and pressure to produce an original contribution. Strategies to overcome these challenges included daily writing routines, extensive reading of theses, and regular consultations with supervisors. Paraphrasing was practiced primarily through synonym replacement and paraphrasing applications to avoid similarity detection rather than to deepen cognitive engagement with literature.

A crucial insight emerging from this study is the tension between high motivation and low epistemic awareness: students show persistence and willingness to improve, yet their writing development is impeded by inadequate analytical and synthesis skills. Unlike previous studies that attributed vocational students' weak academic writing to low motivation or poor supervisory feedback, the present findings reveal that motivation and feedback are present, but that explicit instruction in critical writing concepts and academic argumentation is lacking. This indicates that challenges in vocational thesis writing do not arise from reluctance to learn, but rather from curricular orientations that underemphasize the cognitive components of writing. To enhance the incorporation of critical writing learning strategies into thesis preparation, specialized training focusing on skill development is crucial (Lv et al., 2022). Additionally, students require guided assistance and feedback during the thesis composition process (Safitri et al., 2022).

These findings underscore the need for (1) targeted instruction in evaluating and synthesizing evidence, (2) feedback that emphasizes argument development rather than formatting, and (3) structured opportunities for students to practice critical reasoning beyond paraphrasing and

summarizing. Such interventions would bridge the gap between students' strong affective readiness and their limited conceptual mastery of critical writing, thereby equipping vocational learners to produce more analytical, evidence-based, and academically rigorous thesis writing.

Implications

The findings of this study provide several implications for vocational higher education, particularly in the teaching of academic writing and thesis preparation. First, the results suggest that critical writing instruction in vocational education should move beyond procedural writing conventions and explicitly emphasize higher-order cognitive processes such as argument evaluation, source synthesis, counterargument construction, and evidence-based reasoning. Since students demonstrated strong motivation but limited epistemic awareness, instructional practices should incorporate structured scaffolding, guided critical reading activities, and explicit modeling of argumentative writing.

Second, the findings imply the need for curriculum adjustments in vocational education contexts, where practical competencies are often prioritized over academic literacy development. Third, this study contributes theoretically into disciplinary and project-based learning activities may help vocational students connect technical expertise.

Third, this study contributes theoretically to the literature on vocational education by showing that difficulties in thesis writing are not solely caused by low motivation or weak supervision, but also by the limited emphasis on epistemic and analytical dimensions of writing within vocational curricula. These findings highlight the importance of viewing critical writing as an integral component of vocational literacy rather than as a supplementary academic skill.

CONCLUSION

This study categorizes vocational students' critical writing skills in thesis writing into three primary classifications: exceptional skills, evident yet underdeveloped skills, and skills that remain underdeveloped. Exceptional skills are evident in discerning pertinent information and evaluating evidence and arguments. However, synthesis, paraphrasing, and drawing conclusions remain major challenges that hinder the construction of a complete argument. In addition, the ability to present counterarguments, evaluate weaknesses in arguments, and express disagreement academically is not yet evident in most of the students' writing. These findings significantly contribute to vocational education by highlighting the necessity for learning strategies that emphasize not only technical writing but also critical thinking processes in evaluating, synthesizing, and comparing ideas. Targeted feedback from lecturers, peers, and self-evaluation is a key mechanism for helping students develop these skills during thesis writing. This study is limited by its data coverage, which pertains solely to one vocational institution, and by its analysis, which focuses on thesis materials and student perceptions, without explicitly evaluating classroom writing instruction procedures. Therefore, further research is recommended to: (1) explore the relationship between critical writing teaching practices in the classroom and the quality of thesis writing; (2) test the effectiveness of specific interventions such as source synthesis training, paraphrasing training with textual transformation, or a gradual feedback model on improving critical writing skills; and (3) conduct comparative studies between vocational study programs or institutions to map variations in critical writing skills in a broader context. These findings suggest that critical writing in vocational education should not be regarded as a supplementary skill, but rather as a foundation of academic and professional literacy that defines graduates' capacity to meet the demands of a knowledge-based work environment.

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