

From Assistance to Dependency: A Qualitative Case Study of AI-Mediated Academic Writing Among Postgraduate EFL Students

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ABSTRACT

Artificial Intelligence (AI) is increasingly used in academic writing, particularly among EFL learners, due to its ability to support linguistic accuracy and writing efficiency. However, existing studies tend to emphasize the benefits of AI tools, while the potential shift from linguistic assistance to language dependency remains underexplored, especially in postgraduate EFL contexts. This study aims to investigate how AI mediates academic writing among postgraduate EFL students, focusing on the continuum between assistance and dependency. A qualitative case study design was employed, involving 20 postgraduate students. Data were collected through semi-structured interviews and document analysis of students' writing samples, and analyzed using thematic analysis supported by NVivo. The findings reveal four key themes: (1) AI enhances linguistic accuracy, efficiency, and confidence; (2) AI functions as a cognitive mediator in idea development and text structuring; (3) AI contributes to emerging dependency, reflected in reduced critical engagement and learner autonomy; and (4) AI use operates along a dynamic continuum from assistance to dependency, characterized by tension between awareness and actual practice. These findings suggest that AI is not inherently beneficial or harmful, but its impact depends on how it is used. Practically, the study highlights the need for pedagogical strategies that guide students to use AI critically and reflectively, such as integrating AI-supported tasks with independent writing, promoting metacognitive awareness, and establishing clear boundaries for AI use in academic work.

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1. INTRODUCTION

The rapid proliferation of Artificial Intelligence (AI) has begun to reshape higher education globally, with particularly visible effects in the domain of academic writing. Advances in generative language models and natural language processing have enabled tools that can provide instantaneous

feedback, suggest revisions, and generate extended passages of text with minimal user input. Such developments are widely regarded as enhancing efficiency and lowering linguistic barriers, especially for English as a Foreign Language (EFL) learners (Song & Song, 2023). At the same time, however, a growing body of scholarship cautions that these technologies may also reconfigure the epistemic and cognitive foundations of writing by mediating, and in some cases displacing, human reasoning processes. As a result, academic writing is increasingly conceptualized not solely as an individual cognitive endeavor, but as a hybrid practice situated at the intersection of human cognition and machine assistance.

Within this global trajectory, the integration of AI in postgraduate education appears particularly consequential. Postgraduate students are typically expected to demonstrate high levels of autonomy, critical thinking, and originality in their academic writing. Yet emerging evidence suggests that students are not only using AI for surface-level editing but also for idea generation, argument structuring, and even full-text production (Black & Tomlinson, 2025; Zhai et al., 2024). In the Indonesian higher education context, where EFL learners navigate both linguistic and academic challenges, AI tools may be perceived as especially useful. However, this increasing reliance may also signal a shift from assisted writing toward more deeply AI-mediated writing practices, raising questions about intellectual ownership, academic integrity, and the development of scholarly voice. Despite the growing use of AI in academic writing, current research has not clearly explained how students transition from using AI as linguistic support to developing language dependency, particularly from the learners' own experiential perspective.

In this study, AI-mediated academic writing is understood as a process in which writers interact with AI systems to assist, enhance, or generate academic texts. Two interrelated constructs are central to this investigation: linguistic support and language dependency. Linguistic support refers to the ways in which AI facilitates writing through grammar correction, lexical enhancement, and structural guidance (Wang, 2024; Zhao, 2024). In contrast, language dependency refers to a pattern of sustained reliance on AI that may limit writers' independent capacity to construct, evaluate, and refine academic text (Budiyono, 2025; Mohammadkarimi & Qadir, 2025). For instance, a postgraduate student may initially use AI to revise sentence structure, thereby improving clarity (linguistic support). Over time, however, the same student may begin to rely on AI to generate arguments or entire sections of a paper without critical evaluation, which could be interpreted as language dependency. This distinction underscores the dual and potentially tension-filled role of AI in academic writing.

A growing number of studies have examined the impact of AI on academic writing, generally highlighting both its benefits and potential risks. Several studies consistently report that AI enhances linguistic accuracy, productivity, and idea generation (Khalifa & Albadawy, 2024; Faisal, 2024). However, these studies primarily focus on performance outcomes and technological affordances, offering limited insight into how these improvements are cognitively and behaviorally negotiated by learners.

In contrast, other studies emphasize the potential drawbacks of AI use, particularly in relation to reduced critical engagement, originality, and reflective thinking (Pryma et al., 2025; Rosmayanti, 2025). While these findings raise important concerns, they tend to conceptualize dependency as an outcome rather than examining how it develops through everyday writing practices.

Additionally, research from educators' perspectives suggests that AI improves writing quality while simultaneously increasing reliance on AI-generated content (Jiang, 2022; Sumakula et al., 2022). However, these studies are largely based on teacher observations, leaving students' own experiences and perceptions underexplored.

Taken together, the literature reveals a consistent tension: AI is recognized as both a facilitator of writing development and a potential source of dependency. Yet, existing studies rarely examine how this tension is experienced, negotiated, and internalized by students in real writing processes.

Despite these insights, a critical gap remains: existing research has not adequately explained how AI use shifts from linguistic support to language dependency as a lived and evolving process. In particular, there is limited understanding of how postgraduate EFL students experience, interpret, and negotiate this transition in their actual writing practices, especially within the Indonesian context.

In response to these limitations, the present study aims to explore how AI functions both as a source of linguistic support and as a potential driver of language dependency in postgraduate academic writing. Specifically, this study addresses the following research questions:

(1) How does AI influence postgraduate students' academic writing in terms of linguistic support and language dependency?

(2) How do postgraduate students experience and perceive the use of AI in their academic writing processes?

To investigate these questions, a qualitative case study design is employed, enabling an in-depth exploration of participants' experiences within a specific institutional context. This approach is particularly appropriate given the study's focus on subjective perceptions, practices, and meaning-making processes (Yen et al., 2023). It is anticipated that the findings will reveal a complex and dynamic interplay between support and dependency, rather than a linear or uniformly positive/negative impact. Moreover, the study is expected to highlight variations in how students critically engage with AI-generated content.

This study offers a novel contribution by conceptualizing AI use in academic writing as a dynamic continuum between linguistic support and language dependency, grounded in students' lived experiences. Unlike prior studies that focus primarily on outcomes or perceptions in isolation, this research provides a process-oriented, experience-based account of how dependency emerges and is negotiated in real writing practices. This perspective contributes to a more nuanced understanding of AI-mediated writing and informs the development of pedagogical strategies that promote critical and responsible AI use.

2. METHODS

This study adopts a qualitative case study approach to explore how Artificial Intelligence (AI) influences academic writing practices among postgraduate EFL students in Indonesia. This approach was selected as it focuses on understanding the experiences, perceptions, and the ways students engage with AI in their writing processes. By using this design, the researcher can gain a deeper insight into how AI serves as a tool for linguistic support, while also examining the potential for dependency in academic writing.

2.1. Research Design

This study adopts a qualitative case study approach to investigate how Artificial Intelligence (AI) mediates academic writing practices among postgraduate EFL students. A qualitative design was selected not only because it allows the exploration of participants' lived experiences, but also because alternative approaches, such as experimental or survey-based designs, would be insufficient to capture the dynamic and process-oriented nature of AI-mediated writing. Quantitative methods tend to reduce AI use to measurable variables (e.g., frequency or performance outcomes), thereby overlooking how dependency develops through interaction, reflection, and decision-making in real writing contexts. In contrast, a qualitative case study enables an in-depth examination of how students negotiate the tension between linguistic support and dependency over time within a specific sociocultural and institutional setting (Hieu & Thao, 2024).

Given the complex and context-dependent nature of AI integration in writing practices, a qualitative approach allows for a deeper understanding of how students make sense of and engage with AI tools in their everyday academic activities.

More specifically, the study focuses on the phenomenon of AI-mediated academic writing, which involves the interaction between human cognitive processes and AI-generated support. This phenomenon is not only technical but also experiential, as it encompasses students' decisions, reflections, and evolving writing strategies. Therefore, capturing these nuanced processes requires an approach that prioritizes depth, context, and meaning-making. A qualitative case study enables the researcher to examine this phenomenon holistically within its real-life setting, where the boundaries between the use of AI and the academic writing process are often intertwined (Rogti, 2023).

This research is designed as a single instrumental case study, focusing on one postgraduate English Language Education program at a university in Indonesia. The case is considered "instrumental" because it is used to provide insight into a broader issue—namely, the shifting role of AI from a source of linguistic assistance to a potential driver of dependency in academic writing (Sumakula et al., 2022). The selected program represents a relevant and information-rich context in which students are required to engage intensively in academic writing while also having access to AI tools. By concentrating on a single case, the study aims to generate an in-depth and contextually grounded understanding of the phenomenon.

The choice of this design is closely aligned with the research questions, which seek to explore how AI influences academic writing practices and how students experience and perceive its use. These questions are exploratory in nature and require detailed accounts of individual experiences and practices. A qualitative case study facilitates this by allowing the researcher to gather rich, descriptive data and to identify patterns and meanings that may not be accessible through quantitative methods. Ultimately, this design supports a comprehensive examination of the dynamic relationship between linguistic support and language dependency, which lies at the core of this study.

2.2 Research Context and Participants

This study was conducted in a postgraduate English Language Education program at a university in Indonesia, where English is used as a foreign language (EFL). Within this context, students are expected to demonstrate advanced academic writing competencies, including the ability to construct coherent arguments, critically engage with scholarly literature, and adhere to established academic conventions. These expectations are particularly salient at the postgraduate level, where writing is not only a means of assessment but also a central component of knowledge production. At the same time, many students continue to encounter linguistic and rhetorical challenges, which may shape their reliance on various forms of technological support, including AI-based writing tools.

The increasing availability of AI tools such as generative language models, grammar checkers, and paraphrasing applications has introduced new dynamics into students' writing practices (Barrett & Pack, 2023). For EFL learners, these tools may serve as valuable resources for improving linguistic accuracy and fluency (Thi et al., 2025). However, their use may also influence how students approach the writing process, potentially shifting the balance between independent composition and externally mediated support. This context, therefore, provides a relevant and information-rich setting for examining the interplay between linguistic assistance and emerging dependency in AI-mediated academic writing.

Participants were selected using purposive sampling, with the aim of identifying individuals who could offer rich, experience-based insights into the phenomenon under investigation (Kim et al., 2024). The inclusion criteria were as follows: (1) participants had to be currently enrolled in a postgraduate EFL program, (2) they needed to be actively engaged in academic writing tasks, such as thesis writing or research paper preparation, and (3) they must have prior experience using AI tools in their writing process. These criteria ensured that all participants had direct and relevant engagement with AI-mediated writing practices.

A total of 20 participants were recruited for the study. This number is considered sufficient to achieve depth and thematic saturation in qualitative research, particularly when the focus is on

exploring shared experiences within a relatively homogeneous group (Chakrabarty et al., 2023). The participants consisted of 20 postgraduate students aged between 23–35 years, including 9 males and 11 females. In terms of English proficiency, participants were generally at an upper-intermediate to advanced level, as indicated by their enrollment in a postgraduate English Language Education program and their engagement in academic writing tasks such as thesis writing and research publication.

Participants varied in terms of their academic writing experience and frequency of AI use, allowing for a more nuanced understanding of different patterns of engagement. To protect participants' identities and ensure confidentiality, all names used in this study are pseudonyms. This study adhered to established ethical research standards. Ethical approval was obtained from the relevant institutional review board prior to data collection. All participants were fully informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without penalty. Written informed consent was obtained from all participants before the interviews and document collection. To ensure confidentiality, all data were anonymized, and identifying information was removed from transcripts and writing samples.

2.3 Data Collection Methods

To capture both participants' subjective perceptions and their actual writing practices, this study employed multiple data sources, thereby enabling methodological triangulation and enhancing the depth and credibility of the findings (Michel et al., 2020). Data were primarily collected through in-depth semi-structured interviews and complemented by document analysis of participants' academic writing artifacts. The combination of these methods was intended to provide a comprehensive understanding of how AI is experienced, interpreted, and enacted in real writing contexts, particularly in relation to the continuum between linguistic support and language dependency.

The primary source of data was semi-structured interviews, which allowed participants to articulate their experiences, beliefs, and reflections in their own words while maintaining alignment with the research objectives (Hatmanto & Sari, 2023). This format provided flexibility for probing and follow-up questions, enabling the researcher to explore emerging themes in greater depth. Each interview lasted approximately 45–60 minutes and was conducted either face-to-face or via online platforms, depending on participants' availability and preferences. The interview protocol was designed to elicit detailed insights into several key areas, including patterns of AI use in academic writing, perceived benefits such as improved linguistic accuracy and efficiency, and perceived drawbacks, including potential dependency and reduced critical engagement. Participants were also invited to reflect on issues of autonomy, authorship, and the extent to which AI influences their writing decisions. All interviews were conducted with participants' informed consent, audio-recorded, and transcribed verbatim to ensure accuracy and facilitate systematic analysis.

To complement these self-reported accounts, document analysis was conducted on participants' academic writing samples. These documents included selected drafts, revised versions, and final submissions of essays or thesis sections. Where possible, participants were also asked to provide examples of AI-generated outputs or the prompts they used during the writing process. This additional data source allowed the researcher to move beyond perceptions and examine concrete evidence of AI mediation in writing. Through this analysis, observable patterns such as shifts in lexical choice, sentence complexity, and argument structure were identified. More importantly, document analysis enabled a closer examination of how AI functioned in practice—whether as a tool for refining language (linguistic support) or as a substitute for independent text production (language dependency). By integrating interview data with writing artifacts, the study was able to develop a more grounded and nuanced understanding of AI-mediated academic writing.

2.4 Data Analysis

The data in this study were analyzed using thematic analysis, following the six-phase framework proposed by Braun and Clarke (Braun & Clarke, 2006). This approach was selected for its flexibility and its suitability for identifying, analyzing, and interpreting patterns across qualitative datasets. To ensure a systematic and transparent analytical process, all data were managed and analyzed using NVivo (Version 14), which facilitated efficient data organization, coding, and retrieval, as well as the development of a clear audit trail.



Figure 1. Thematic Analysis Cycle

The analysis began with the familiarization phase, in which the researcher engaged in repeated and active reading of interview transcripts and writing documents to develop a comprehensive understanding of the dataset. During this stage, initial insights and reflections were recorded as analytic memos within NVivo, supporting early interpretation and reflexivity. This was followed by the initial coding phase, where the data were systematically coded using an inductive approach. Meaningful segments of text were assigned to nodes in NVivo, capturing key aspects related to AI use, writing practices, perceived benefits, challenges, and reflections on autonomy.

In the theme development phase, related codes were grouped into broader categories by organizing nodes into hierarchical structures. NVivo's features, such as node trees and coding comparison queries, were utilized to identify patterns across participants and data sources. The subsequent theme refinement phase involved a recursive process of reviewing coded data extracts to ensure that each theme demonstrated internal coherence while remaining distinct from other themes.

This step also involved cross-checking themes against the entire dataset to enhance analytical validity. During the theme definition phase, each theme was clearly defined and named, with explicit attention to its scope, central meaning, and relevance to the research questions. Finally, the interpretation phase involved linking the themes to existing theoretical frameworks and empirical studies, thereby situating the findings within the broader scholarly discourse.

Importantly, the entire analytical process was guided by a conceptual lens focusing on the continuum between linguistic support and language dependency. Rather than treating these constructs as binary categories, the analysis examined how participants' writing practices reflected varying degrees of reliance on AI. Instances where AI-enhanced linguistic accuracy, clarity, and expression were interpreted as forms of assistance, whereas cases where AI appeared to replace critical thinking, idea generation, or independent text production were categorized as dependency. Particular attention was given to identifying patterns of transition, negotiation, and tension between these roles. By integrating NVivo-assisted coding with this conceptual framework, the analysis provides a nuanced, systematic, and theoretically grounded account of AI-mediated academic writing practices.

3. FINDINGS AND DISCUSSION

3.1. Findings

This section presents the findings of the study, aiming to explore how Artificial Intelligence (AI) mediates postgraduate EFL students' academic writing practices. In particular, the analysis focuses on understanding how AI functions both as a source of linguistic support and as a potential driver of language dependency. The findings are organized into several themes generated through thematic analysis, following a systematic coding and categorization process. These themes reflect recurring patterns across participants' experiences, perceptions, and writing practices, as identified from both interview data and document analysis. Importantly, the analysis is guided by a conceptual lens that views AI use along a continuum, ranging from linguistic support, where AI enhances accuracy and expression to language dependency, where AI begins to substitute for independent cognitive and writing processes. This framework allows for a nuanced interpretation of how students navigate and negotiate their use of AI in academic writing contexts.

3.1.1 AI as Linguistic Support in Academic Writing

At the initial stage of engagement, participants consistently described AI as a form of linguistic support that facilitates the production of academic texts. One of the most prominent functions identified was its role in enhancing linguistic accuracy. Participants' accounts indicate that AI plays a significant role in enhancing linguistic accuracy, particularly at the level of grammar and lexical choice. Rather than merely assisting, AI appears to function as a corrective scaffold that shapes how students construct acceptable academic language. For example, one participant stated, "I usually write my draft first, then I ask AI to correct my grammar because I am not confident with my sentence structure." (P7).

This suggests that AI not only improves surface-level accuracy but also compensates for learners' perceived linguistic limitations. However, this reliance simultaneously reflects a dependence on external validation of language correctness, indicating that linguistic support is closely intertwined with underlying confidence issues.

In addition to improving accuracy, AI was perceived as a tool for enhancing writing efficiency. Participants indicated that AI enabled them to draft texts more quickly by providing suggestions for sentence construction and generating initial ideas. Some students reported using AI to overcome writer's block, particularly during the early stages of writing, where generating a starting point can be challenging. By reducing the time and effort required to produce initial drafts, AI appeared to lower the cognitive load associated with writing, allowing students to focus more on organizing their ideas. However, this efficiency was primarily associated with supportive use, where students retained control over the content and direction of their writing.

Furthermore, AI was found to play a role in supporting academic confidence. Several participants expressed that using AI tools increased their confidence in writing in English, as they felt more assured that their texts met academic standards. This was particularly important for students who previously experienced anxiety related to grammatical errors or limited vocabulary. The availability of immediate feedback and suggestions appeared to reduce this anxiety, enabling students to engage more actively in the writing process.

Overall, these findings indicate that, at this stage, AI functions as a supportive tool that enhances students' linguistic performance and confidence. AI functions as a scaffold that supports language production without fully replacing student agency.

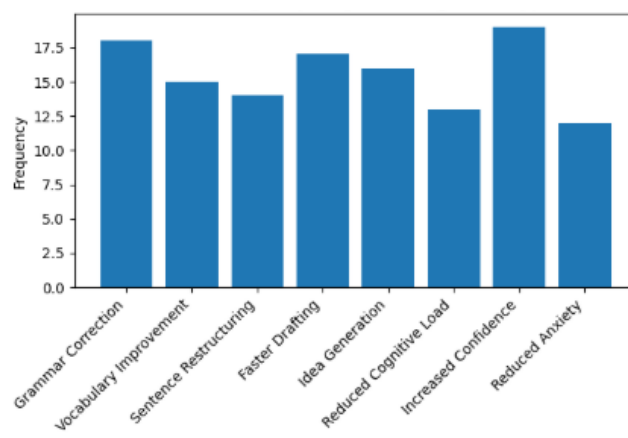


Figure 2. NVivo Coding Frequency: AI as Linguistic Support

Figure 2 visualizes the distribution of NVivo coding frequencies across sub-themes related to AI as linguistic support. The chart reveals a relatively balanced yet slightly peaked distribution, with “Increased Confidence” and “Grammar Correction” standing out as dominant categories. This pattern suggests that AI’s impact is not limited to technical writing improvement but extends to psychological reinforcement. The mid-range frequencies of “Idea Generation” and “Faster Drafting” indicate that AI also supports cognitive processes, though not as prominently as linguistic accuracy. The visual spread of data highlights the multifaceted role of AI, reinforcing its function as a supportive scaffold rather than a dominant replacement. These findings address Research Question 1 by showing how AI enhances students’ linguistic performance while shaping their writing behaviour at the surface level.

3.1.2 AI as a Cognitive and Writing Mediator

At the intermediate stage of engagement, AI emerges not merely as a linguistic aid but as a cognitive and writing mediator, shaping how students develop, organize, and refine their academic texts. Participants reported that AI played a significant role in idea development and structuring, particularly during the early and middle phases of writing. Many students described using AI tools to generate outlines, suggest topic sentences, and organize arguments into coherent frameworks. This function was especially useful when dealing with complex academic tasks such as literature reviews or argumentative essays, where structuring ideas can be cognitively demanding. In this sense, AI extends beyond surface-level correction and begins to influence the conceptual organization of writing.

Importantly, this pattern reflects a shift from linguistic assistance toward cognitive mediation, where AI begins to influence not only how students write but also how they think about writing. As one participant explained, “Sometimes I ask AI to give me an outline, then I follow it because it is easier than thinking from the beginning” (P12). This indicates that AI starts to shape the organization of ideas, suggesting an emerging redistribution of cognitive responsibility between the learner and the tool.

At the same time, participants emphasized an ongoing negotiation between human input and AI-generated content. Rather than passively accepting AI outputs, many students reported actively editing, modifying, and selectively incorporating suggestions. This process involved evaluating the relevance, accuracy, and appropriateness of AI-generated text before integrating it into their work. For example, some participants noted that they would use AI-generated drafts as a “starting point” but would subsequently revise them to better align with their intended arguments or personal writing style. This indicates that, at this stage, students still exercise a degree of control and critical judgment, positioning AI as a collaborative partner rather than a replacement.

However, the data also reveal the emergence of early patterns of dependency, particularly in the repeated use of AI for specific writing tasks. Several participants reported consistently relying on AI

for generating introductions, paraphrasing complex sentences, or organizing paragraphs. While these practices may initially appear as strategic use of available tools, they may also signal a gradual shift toward reliance, especially when students begin to default to AI for routine aspects of writing. Importantly, this reliance is not yet absolute; students remain engaged in the writing process and continue to make decisions about content and structure.

Overall, this theme highlights a hybrid writing process, characterized by an ongoing interaction between human cognition and AI support. While AI plays an increasingly influential role in shaping writing practices, it does not fully replace student agency at this stage. Instead, it operates within a negotiated space where support and emerging dependency coexist.

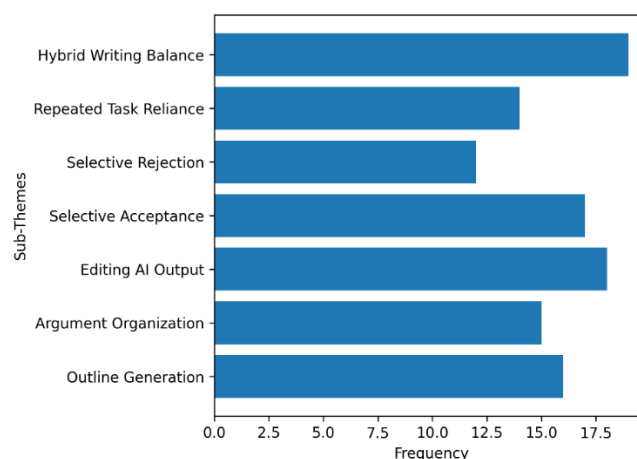


Figure 3. NVivo Coding Pattern: AI as Cognitive and Writing Media

Figure 3 presents a horizontal visualization of NVivo coding frequencies, emphasizing the dynamic interaction between human and AI contributions in academic writing. The chart highlights “Hybrid Writing Balance” as the most prominent category, visually reinforcing the idea that students are situated within a collaborative writing space rather than fully independent or fully dependent modes. The relatively high values for “Editing AI Output” and “Selective Acceptance” demonstrate active cognitive engagement, while moderate values for “Repeated Task Reliance” indicate the early stages of dependency formation. The visual distribution suggests a transitional phase, where AI functions as a mediator, shaping but not yet dominating the writing process. This finding further responds to Research Question 1 by illustrating how AI influences not only language production but also cognitive processes in writing.

3.1.3 AI as a Source of Language Dependency

At the advanced stage of engagement, the findings indicate a noticeable shift from AI as a supportive tool toward AI as a source of language dependency. Participants increasingly reported over-reliance on AI for content generation, particularly in producing full paragraphs or extended sections of their academic texts. Unlike earlier stages, where AI was used to refine or support existing ideas, several students described situations in which they depended on AI to generate initial content with minimal modification. Some participants explicitly acknowledged that they would “copy and adjust slightly” rather than develop ideas independently. This pattern was further corroborated by document analysis, which revealed instances where AI-generated structures and phrasing were retained with limited personalization, suggesting reduced authorial input.

This over-reliance appears to be closely associated with reduced critical engagement in the writing process. Participants reported that, when using AI extensively, they were less likely to engage deeply

with their own arguments or critically evaluate the generated content. Instead of actively constructing ideas, some students adopted a more passive role, accepting AI outputs as sufficiently accurate or appropriate. This tendency was particularly evident in tasks requiring higher-order thinking, such as argument development and synthesis of sources. In such cases, AI seemed to function not only as a linguistic tool but also as a cognitive shortcut, potentially limiting opportunities for deeper analytical processing.

This shift toward dependency is further illustrated by participants' reduced engagement in idea construction. One participant admitted, "Sometimes I just copy from AI and change a few words because it already sounds academic" (P3). Such practices indicate that AI is no longer functioning as a support tool but as a substitute for cognitive effort. This finding directly addresses Research Question 1 by demonstrating how AI use can transform writing from an active meaning-making process into a more passive, output-driven activity.

Moreover, the data suggest an erosion of academic autonomy, as several participants expressed difficulty writing without AI assistance. Some students reported feeling "dependent" on AI tools, noting that they struggled to begin or continue writing tasks in the absence of technological support. This reliance was sometimes accompanied by a perceived "loss of voice," where participants felt that their writing no longer fully reflected their own ideas or style. The comparison of writing samples further illustrated this issue, as AI-assisted texts tended to exhibit more uniform and standardized language, with less variation in individual expression.

Taken together, these findings highlight a critical stage in which AI begins to move beyond support and toward substitution. The combination of full content generation, reduced critical engagement, and diminished autonomy suggests that AI, when used extensively without reflective control, may contribute to the development of language dependency in academic writing.

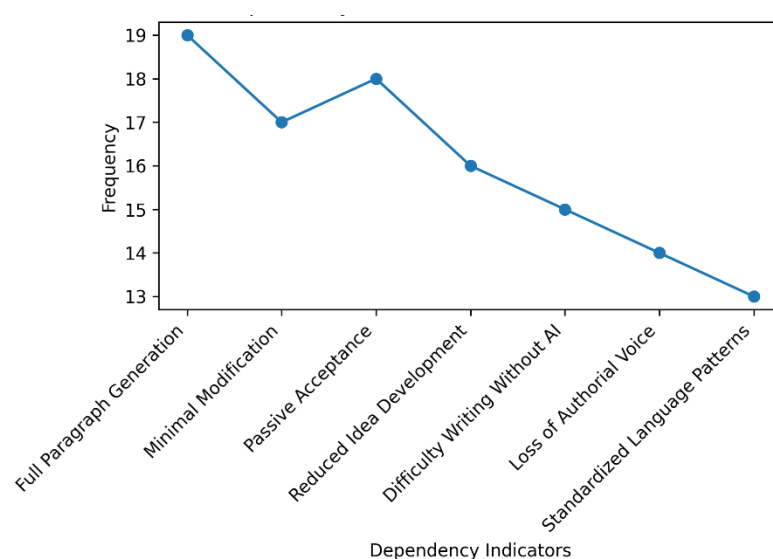


Figure 4. NVivo Dependency Escalation Pattern in AI-Mediated Writing

Figure 4 illustrates a dependency escalation pattern using a line-graph visualization, highlighting the progression of AI reliance in academic writing. The chart begins with a peak at "Full Paragraph Generation," indicating strong dependence on AI for content creation, followed by consistently high values in "Passive Acceptance" and "Minimal Modification." The gradual downward slope toward "Standardized Language Patterns" suggests a transition from immediate behavioral dependency to deeper structural and identity-related impacts. This trend-based visualization uniquely captures the processual nature of dependency, rather than static categories, emphasizing how reliance on AI evolves

across different dimensions of writing practice. This theme highlights a critical dimension of Research Question 1, demonstrating how AI use may lead to reduced autonomy and increased dependency.

3.1.4 Tension and Transition from Assistance to Dependency

This theme represents the core finding of the study, highlighting the dynamic tension and gradual transition from AI as linguistic assistance to AI as a source of dependency in academic writing. Rather than a sudden shift, the data reveal a progressive transformation in writing practices, where students move along a continuum from using AI for editing to relying on it for content generation. In the early stages, participants primarily used AI to correct grammar and refine sentence structure. However, over time, many reported extending their use to generating ideas, organizing arguments, and eventually producing full sections of text. This trajectory from editing, to generating, to relying, suggests that dependency emerges incrementally as students become more accustomed to AI-mediated writing.

A significant aspect of this transition is the gap between awareness and practice. Many participants demonstrated a clear understanding of the potential risks associated with excessive AI use, including reduced critical thinking, loss of originality, and ethical concerns. Despite this awareness, they continued to rely on AI tools, particularly under conditions of time pressure, academic demands, or linguistic difficulty. This contradiction indicates that awareness alone may not be sufficient to regulate AI use. Instead, students appear to negotiate between ideal academic practices and practical constraints, often prioritizing efficiency over independence.

The findings also reveal ethical and cognitive tensions experienced by participants. On one hand, students recognized the value of AI in supporting their writing; on the other hand, they expressed concerns about issues such as plagiarism, authorship, and the authenticity of their work. Some participants reported feeling uncertain about whether their AI-assisted writing could be considered fully their own, leading to a sense of internal conflict. This tension was further reflected in their writing practices, where they attempted to balance AI assistance with personal input, yet were not always able to clearly delineate the boundary between the two.

Overall, this theme underscores that the shift from assistance to dependency is not merely a technical change but a complex, negotiated process involving cognitive, ethical, and practical dimensions. The coexistence of reliance and resistance highlights the need for a more nuanced understanding of AI use in academic writing, particularly in contexts where students must navigate competing demands of performance, integrity, and autonomy.

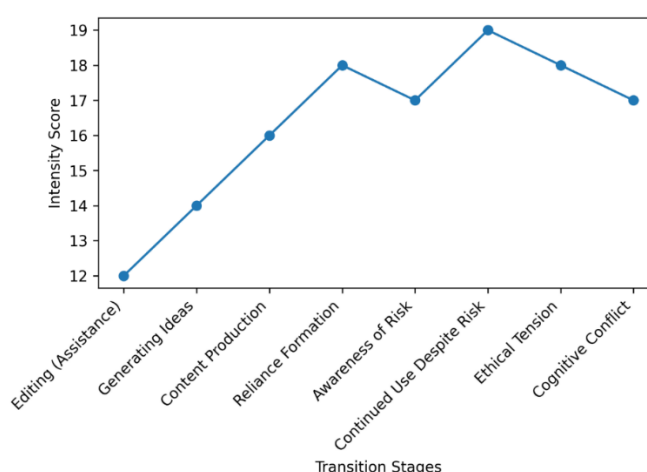


Figure 5. NVivo Transition Continuum: Assistance to Dependency

Figure 5 visualizes the transition from assistance to dependency using a continuum-based line graph, emphasizing the progressive nature of AI reliance. The upward trajectory from “Editing” to “Reliance Formation” illustrates how AI use intensifies over time. A notable peak at “Continued Use Despite Risk” indicates a critical turning point where awareness does not prevent dependency. The subsequent plateau across “Ethical Tension” and “Cognitive Conflict” reflects internal struggles rather than behavioral reduction. Unlike static charts, this visualization highlights the processual and dynamic nature of dependency, reinforcing the argument that AI use evolves through stages shaped by both cognitive and contextual factors.

This study identified four interrelated themes that explain how AI mediates postgraduate EFL students’ academic writing practices. First, AI as linguistic support highlights its role in improving grammatical accuracy, vocabulary, efficiency, and confidence. Second, AI as a cognitive and writing mediator shows how students engage in a hybrid process, negotiating between their own input and AI-generated content while using AI for idea development and organization. Third, AI as a source of language dependency reveals a more advanced stage, where over-reliance on AI leads to reduced critical engagement, diminished autonomy, and a perceived loss of authorial voice. Finally, tension and transition from assistance to dependency captures the dynamic and gradual shift across these stages, including the gap between awareness and actual practice, as well as emerging ethical and cognitive conflicts.

Taken together, these findings suggest that AI should not be understood as inherently beneficial or harmful. Instead, its role is better conceptualized as existing along a continuum, ranging from supportive assistance to problematic dependency. This continuum underscores the complexity of AI-mediated writing and highlights the need for a more nuanced interpretation, which is further elaborated in the following discussion section. This theme addresses both Research Question 1 and 2 by revealing how students experience and negotiate the transition between assistance and dependency in their writing practices.

3.2 Discussion

This study set out to examine how Artificial Intelligence (AI) mediates academic writing among postgraduate EFL students. Rather than simply indicating variation in AI use, the findings point to a fundamental shift in how cognitive and social aspects of writing are organized. AI is not only used as a tool but becomes embedded within the writing process itself, reshaping how ideas are generated, structured, and evaluated.

Beyond descriptive patterns, these findings suggest that AI use is not simply about improved writing performance but about changing cognitive engagement. The first research question is how AI influences writing practices was supported, as students’ behaviors clearly evolved from surface-level editing to deeper reliance. The second question is how students perceive AI was also supported, revealing a complex mix of appreciation, concern, and ambivalence. These results indicate that AI reshapes not only *what* students produce but *how* they think and write.

The observed patterns can be explained through relevant theoretical frameworks. From a sociocultural perspective, AI can be interpreted as a form of externalized scaffolding that extends the learner’s zone of proximal development (Fitri & Sinaga, 2006). However, unlike traditional human-mediated scaffolding, which is gradually withdrawn as competence increases, AI-based support remains constantly available. This persistent availability may disrupt the internalization process, leading to prolonged reliance rather than independent mastery. In this sense, the observed shift toward dependency reflects not only increased tool use but a reconfiguration of how learning is socially and cognitively mediated.

This dual role helps explain why AI can both enhance performance and potentially reduce independent cognitive engagement. The shift from support to dependency thus reflects a broader tension between assistance and autonomy in technology-mediated learning.

While these findings align with studies highlighting the benefits of AI for improving linguistic accuracy and efficiency (Mekheimer, 2025), they contrast with research that suggests AI use does not necessarily reduce learner autonomy when accompanied by strong metacognitive regulation. For example, some studies argue that AI can enhance critical engagement when students are trained to evaluate and adapt AI-generated content rather than accept it passively. The divergence in findings may be explained by differences in learners' AI literacy, instructional context, and task demands. In the present study, limited guidance on critical AI use may have contributed to the emergence of dependency.

At the same time, the emergence of language dependency aligns with growing concerns in the literature regarding reduced critical thinking and over-reliance on automated systems (Solano et al., 2026). Participants in this study demonstrated signs of diminished autonomy, including passive acceptance of AI-generated content and difficulty writing independently. However, it is important to emphasize that these outcomes are not deterministic. Instead, they represent potential risks that arise under specific conditions, such as high workload, time pressure, and linguistic insecurity.

The most significant contribution of this study lies in reconceptualizing AI use in academic writing as a dynamic continuum rather than a binary distinction between support and dependency. This perspective challenges prevailing assumptions that frame AI as either beneficial or detrimental, and instead highlights the fluid, context-dependent nature of AI-mediated learning. By foregrounding the process through which dependency emerges, the study provides a more nuanced account of how technological assistance interacts with cognitive and pedagogical factors over time.

Another critical insight is the tension between awareness and practice. Although students were generally aware of the ethical and cognitive risks associated with AI, they continued to rely on it. This contradiction may be explained by practical constraints, including academic pressure, limited time, and challenges associated with writing in a second language. These factors create a context in which AI use becomes not only convenient but, in some cases, necessary.

From a theoretical standpoint, this study contributes to the fields of academic writing and technology-mediated learning by integrating concepts of scaffolding, cognitive offloading, and learner autonomy (Jacob et al., 2024). It suggests that AI should be understood as an active agent in the writing process, rather than a neutral tool. Practically, the findings highlight the need for AI literacy education, where students are trained not only in how to use AI tools but also in how to critically evaluate and regulate their use. From a pedagogical perspective, these findings have important implications for curriculum design and classroom practice. First, AI literacy should be explicitly integrated into writing curricula, focusing not only on how to use AI tools but on when and why to use them. Second, instructors should design tasks that limit over-reliance on AI, such as requiring stages of independent drafting before AI-assisted revision. Third, assessment practices should shift toward process-based evaluation, where students are required to document and reflect on their use of AI tools. Finally, classroom instruction should incorporate guided activities that develop critical evaluation of AI-generated content, ensuring that students remain active decision-makers in the writing process.

Despite its contributions, this study has several limitations. First, it focuses on a single case, which may limit the generalizability of the findings. Second, the relatively small sample size may not capture the full diversity of student experiences. Third, the study is context-specific, situated within an Indonesian EFL postgraduate setting, which may differ from other educational contexts. Additionally, the reliance on self-reported data may introduce bias, and the cross-sectional design limits the ability to observe long-term changes.

Future research should address these limitations by conducting longitudinal studies to track how AI use evolves over time. Experimental designs could also be employed to compare AI-supported and non-AI writing conditions. Furthermore, studies across different educational levels and cultural contexts would help determine the broader applicability of the findings. New research questions may explore how AI literacy interventions influence dependency or how institutional policies shape ethical

AI use. In conclusion, this study demonstrates that AI plays a complex and evolving role in academic writing. It is neither inherently beneficial nor harmful but operates along a continuum shaped by user practices and contextual factors. Recognizing this dual nature is essential for developing balanced approaches that maximize the benefits of AI while minimizing its risks. Ultimately, fostering critical, reflective, and responsible use of AI will be key to sustaining student autonomy in the age of intelligent writing technologies.

4. CONCLUSION

This study investigated how Artificial Intelligence (AI) mediates academic writing among postgraduate EFL students, with the aim of understanding its role across a continuum from linguistic assistance to language dependency. The findings reveal several key insights. First, AI functions as an effective tool for enhancing linguistic accuracy, efficiency, and writing confidence. Second, it operates as a cognitive mediator, supporting idea development and structuring through a hybrid human–AI writing process. Third, the study identifies emerging patterns of dependency, including reduced critical engagement and diminished authorial autonomy. Fourth, a central contribution is the identification of a gradual, dynamic shift from assistance to dependency, rather than a binary distinction. Finally, the findings highlight a tension between students' awareness of AI-related risks and their continued reliance on these tools.

The study contributes to theory by advancing a continuum-based framework for understanding AI-mediated academic writing, integrating perspectives from scaffolding and cognitive offloading. Practically, it underscores the need for AI literacy and critical engagement in higher education. Educators are encouraged to design writing instruction that emphasizes process, reflection, and responsible AI use, while institutions should consider developing clear guidelines to support ethical practices.

Based on these findings, it is recommended that stakeholders promote balanced AI integration, ensuring that technological support does not undermine student autonomy. Future research should explore longitudinal patterns of AI use, examine diverse educational contexts, and investigate the effectiveness of pedagogical interventions aimed at fostering critical and independent writing in AI-rich environments.

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