

Grammarly: A Modern Ally in Language Teaching. From NLP Theory to Classroom Practice

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Received: December 15, 2025. Revised: April 16, 2026. Accepted: May 17, 2026. Published: July 9, 2026.

Abstract— While AI is often viewed as a threat to academic integrity, this paper proposes tools like Grammarly as sophisticated pedagogical allies bridging Natural Language Processing (NLP) theory and classroom practice. Based on a systematic review of 15 studies (2018–2025), the research introduces two implementable frameworks: the AI-Assisted Diagnostic Assessment model for efficient feedback and the 5-Step Structured Writing Protocol for student scaffolding. The analysis centers on the "5 Cs"—Coherence, Correctness, Clarity, Conciseness, and Consistency. The study argues that delegating mechanical corrections to automated systems enables educators to focus on higher-order skills, including critical thinking and authorial voice. This shifts the instructional dynamic toward a "trialogue" (Teacher, Student, AI), fostering a scaffolded partnership crucial for developing linguistic autonomy and fluency in both L1 and L2 contexts.

Keywords— Grammarly, Natural Language Processing, AI feedback iceberg, scaffolding matrix, EFL instruction, AI-assisted assessment, pedagogical workflow, metacognition, linguistic theory.

I. INTRODUCTION

THE contemporary writing landscape has been radically reshaped by the sheer volume of digital communication, presenting significant new challenges to global education systems. The educator's central role extends well beyond merely stopping grammatical errors. We must now equip students to write with clear persuasion and sharp awareness of their audience, tone, and context. The massive increase in daily written text often results in a burdensome need for mechanical correction among instructors. This administrative load, crucially, pulls energy away from teaching substantive skills like rhetorical strategy and critical argument, [1].

The central premise of this research is that artificial

intelligence, specifically in the form of Automated Writing Evaluation (AWE) tools like Grammarly, should not be viewed as a threat to academic rigor or a replacement for the human instructor. Instead, it must be recognized as a powerful, supplementary pedagogical partner, [2]. This paper seeks to define an elevated role for the educator by exploring how the underlying technology of Natural Language Processing (NLP) can be harnessed to facilitate a transition from a traditional "error-correction" model to a "scaffolded partnership."

The paper proceeds by first outlining the macro-theoretical underpinnings of NLP, then moving to micro-level, practical applications across several disciplines. We also critically review the current body of research (2018–2025) to clearly map the strengths and limitations of AI feedback. A key component of this study is the introduction of two mandated protocols designed specifically to keep student agency at the core of the writing process. Ultimately, we aim to show how Grammarly functions as more than just corrective software; it becomes a strategic learning partner, successfully bridging linguistic theory and classroom reality.

II. LITERATURE REVIEW

To establish a robust foundation for this study, a systematic review of 15 key academic papers published between 2018 and 2025 was conducted. These studies, spanning various educational tiers from secondary schools in Indonesia and Kazakhstan to tertiary institutions in the USA and Europe, provide a comprehensive overview of how AI-integrated scaffolding influences writing instruction, [3].

The consensus among researchers is that Grammarly is exceptionally effective at addressing "surface-level" errors, including grammar, spelling, and punctuation, [4], [5]. A significant finding indicates that AI-driven feedback often outperforms traditional teacher feedback in terms of both speed and precision regarding these technical mechanics, [6]. This provides an immediate reinforcement of accuracy for learners, which significantly boosts student confidence and reduces the anxiety associated with the writing process, [7].

However, the literature also reveals a more complex reality. While Grammarly excels at mechanics, it often struggles with "deep" writing challenges such as argumentative flow, semantic coherence, and content organization, [8]. Recent studies suggest that while AI feedback improves proficiency scores, it does not inherently enhance divergent thinking or creative agency unless it is paired with structured teacher intervention, [8], [9].

A. The AI Feedback Iceberg

This research proposes the "AI Feedback Iceberg" as a conceptual model to describe this phenomenon (cf. Fig. 1).

Above the surface, we observe the immediate, visible successes of Grammarly. Technical mechanics are polished in real-time, providing students with a sense of immediate progress and linguistic accuracy.

Below the waterline, the limitations of the technology become apparent. The AI acts as a master of mechanics but lacks the human-like "understanding" of nuanced logical flow and the subtle complexities of content structure.

Finally, the structural base represents the structural risks, most notably the "digital divide." If access to premium AI features remains unequal, technology may inadvertently exacerbate educational inequalities rather than resolve them, [10].



Fig. 1: The AI Feedback Iceberg. Source: Created by author.

B. The Scaffolding Matrix

The systematic review further emphasizes that the pedagogical outcome of using AI is not determined by the software itself, but by the explicit, procedural, and metacognitive scaffolding provided by the educator (cf. Fig. 2).

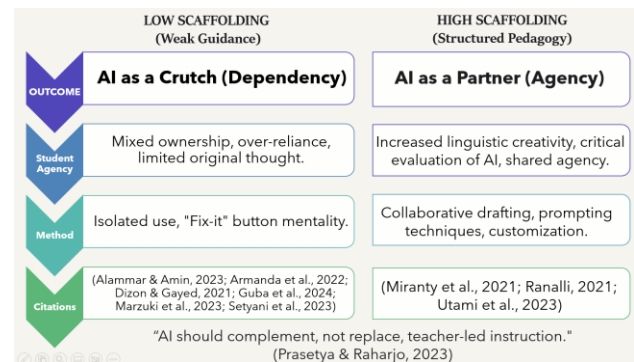


Fig. 2: The Scaffolding Matrix. Source: Created by the author.

In environments where tools are introduced with minimal guidance or used in isolation as an automated panacea for writing deficiencies, students tend to develop "AI dependency", [9], [11]. They passively accept every suggestion without critical evaluation, which constrains original thought and limits their sense of authorship, [7], [12], [13], [14]. In this case AI is used as a crutch and reflects a state of low scaffolding.

Conversely, when teachers explicitly instruct students on how to "prompt" the AI, evaluate its suggestions critically, and customize the tool to meet specific rhetorical goals, student agency and ownership are significantly enhanced, [15], [16]. This shifts the dynamic from isolated use to "shared agency," where the AI functions as a consultant, [17], or partner. This process reflects a state of high scaffolding.

This optimal outcome is achieved through concrete pedagogical interventions that move beyond mere introduction of the tool:

(a) **Metacognitive training:** Teachers must actively coach students to question the AI's suggestions. For effective learning to occur, the student must be able to justify every choice they make regarding the feedback—either to keep or discard it—based entirely on the paper's original rhetorical goal. This need for student justification is the essential mechanism: it actively drives the student out of passively receiving information and enables them to truly own their linguistic decisions.

(b) **Goal customization:** Students are required to adjust the tool's specific settings—such as its intended tone ('academic') or the document's purpose ('inform')—prior to drafting a single word. This intervention trains learners to recognize the software not merely as a default grammar checker, but as a customized consultant precisely calibrated to the specific rhetorical objectives of the assignment.

(c) **Error reflection:** Rather than focusing on grading individual assignments, instructors should strategically employ the AI's aggregated error reports. This allows the class to collectively analyze the underlying linguistic principles responsible for the most common errors. Crucially, this ensures the scaffolding is procedural and based on principle—a deliberate step beyond simple, purely corrective measures.

The teacher's goal is guaranteed by integrating these clear,

structural steps. This process ensures the tool is always used strategically, effectively fostering linguistic autonomy. Consequently, the scaffolding provided is decisively confirmed as procedural, rather than merely corrective.

III. THE THEORETICAL FRAMEWORK: FROM NLP TO FEEDBACK

The transformative power of Grammarly begins with its technological engine: Natural Language Processing (NLP). Simply put, NLP is the field of artificial intelligence that equips computers to read, decipher, and extract meaning from human language, coupling computational linguistics with advanced deep learning models, [18].

Crucially, Grammarly's NLP implementation moves far beyond the rudimentary spell-check of traditional word processors. While traditional tools rely on static dictionaries to identify orthographic errors, Grammarly utilizes sophisticated neural networks to identify contextual errors—instances where a word is spelled correctly but used inappropriately within a specific syntactic or semantic environment. This real-time analysis allows the tool to function as a "tireless digital tutor," providing adaptive feedback that is immediately actionable (cf. Fig. 3). This represents a shift toward "Actionable Linguistic Theory", where complex rules of grammar and style are presented to the student not as abstract concepts, but as situational corrections during the act of creation, [19].

The software assesses writing across five critical dimensions of communicative efficacy, which this research categorizes as the "5 Cs": Coherence, Correctness, Clarity, Conciseness, and Consistency (cf. Fig. 3).

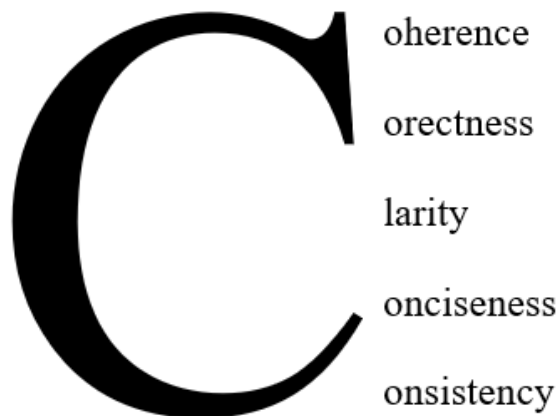


Fig. 3: The 5 Cs. Source: Created by the author

A. Coherence: The Logical Macro-structure

Coherence is the structural quality of a text where the orderly and logical connection of ideas creates a flow so seamless that the reader can follow the writer's train of thought with zero cognitive friction. From a technical standpoint, NLP is instrumental here, facilitating the precise identification of semantic gaps and any fragmented propositions within the narrative.

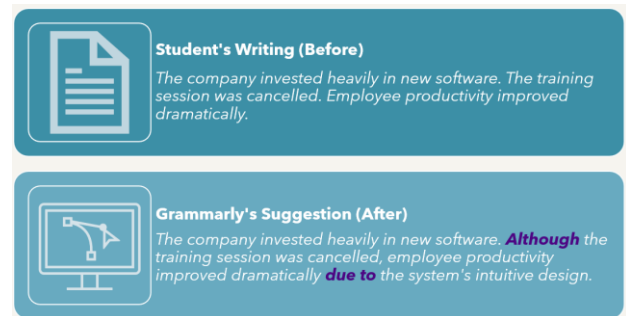


Fig. 4: Coherence: Syntactic architecture and logical connectives. Source: Created by the author.

In the first example (cf. Fig. 4), the algorithms detect when propositions lack cohesive markers or logical transitions. In the student's writing, the facts appear disconnected. Grammarly's NLP engine suggests establishing a cause-and-effect relationship: "Although the training session was canceled, employee productivity improved dramatically due to the system's intuitive design." By suggesting subordinate conjunctions and causal markers, the tool helps the student construct a logically integrated narrative.

B. Correctness: Syntactic and Orthographic Precision

At its core, correctness involves mastering the fundamental mechanics of language, such as punctuation, spelling, and grammar rules, [9], [20]. Our system doesn't just look at words in isolation; it uses sophisticated contextual parsing to tell one grammatical category from another.



Fig. 5: Correctness: Morpho-syntactic integrity and contextual parsing. Source: Created by the author.

In the second example (cf. Fig. 5), the engine distinguishes between homophones based on their syntactic role (e.g., identifying a possessive pronoun where an expletive "there" is required). In the sentence "Their is three projects due next week, and the principal investigator ask the team too prioritize" the tool identifies three distinct errors: the expletive/possessive confusion, the subject-verb agreement/tense error ("ask" to "asked"), and the lexical inaccuracy ("too" to "to"). The second example demonstrates how the system navigates homophonous words by evaluating their role within a sentence's structure, such as distinguishing a possessive from an expletive 'there.' In the test case—"Their is three projects due next week, and the principal investigator

ask the team too prioritize'—the tool pinpoints a trio of distinct linguistic errors. It accurately identifies the expletive-possessive swap, the morphological error in the verb 'ask' and the lexical inaccuracy concerning the particle 'to'.

C. Clarity: The Resolution of Semantic Transparency

Consider the dangling modifier in the third example (cf. Fig. 6): "After waiting in the cramped office for three hours, the doctor finally called the patient". Grammatically, this suggests the doctor was the one waiting. Grammarly recognizes the parse error and suggests: "After the patient waited... the doctor finally called them in". This mitigation of ambiguity ensures the student's message is delivered with precision.

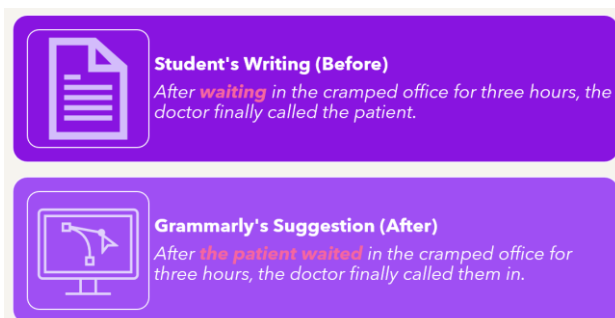


Fig. 6: Clarity: Mitigation of syntactic ambiguity. Source: Created by the author.

D. Conciseness: Information Density and Rhetorical Efficiency

Within scholarly and professional communication, conciseness is defined by the ability to maximize meaning while minimizing linguistic bulk. It is not merely about brevity, but about ensuring that no semantic value is sacrificed for the sake of length. To support this, modern NLP frameworks are specifically engineered to flag "pleonastic expressions"—those redundant word clusters that often obscure a writer's core message.

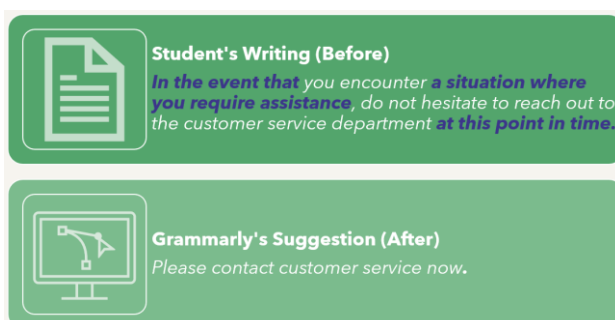


Fig. 7: Conciseness: Optimization of lexical economy. Source: Created by the author.

In the fourth example (cf. Fig. 7), where a student might produce a phrase as wordy as: 'In the event that you encounter a situation where you require assistance, do not hesitate to reach out'. Grammarly counters this by stripping away the circumlocutions and offering a leaner alternative: 'Please

contact customer service now'. Such a shift doesn't just shorten the sentence; it actively distills the information density, ensuring the final message carries far more rhetorical weight.

E. Consistency: Stylistic Register and Tonal prosody

Consistency relates to maintaining a uniform academic persona and tonal modulation throughout a document. Grammarly utilizes sentiment analysis and register detection to monitor "prosodic uniformity."



Fig. 8: Consistency: Tonal alignment and register maintenance. Source: Created by the author.

In the fifth example (cf. Fig. 8), a text that shifts from "Our financial report indicates a substantial ROI" to "the boss is stoked" suffers from a jarring tonal shift. The AI flags the informal colloquialism and suggests maintaining a professional register: "...reflecting excellent stewardship and positive growth."

F. Synthesis: The Pedagogical Augment

The culmination of the theoretical framework is best visualized through the "Synthesis Model" (cf. Fig. 9), which illustrates the convergence of technology and human cognition to enhance communicative efficacy.

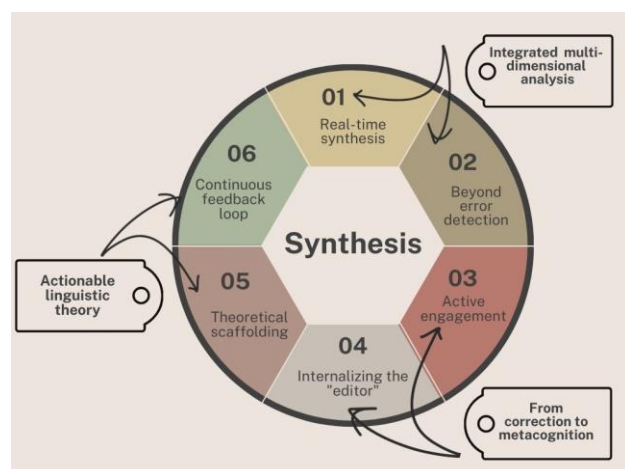


Fig. 9: The Synthesis Model: From NLP Engine to Metacognitive Development. Source: Created by the author.

This model moves beyond binary "surface-level" corrections toward a holistic refinement of the text's

propositional strength. It functions as a pedagogical augment, where the engine of NLP is repurposed as a catalyst for metacognitive growth.

As demonstrated in Fig. 9, the synthesis is structured around three primary clusters that define the new relationship between linguistic theory and student output:

- **Cluster 1:** Integrated multi-dimensional analysis (Steps 01-02). In standard word processors, feedback is often siloed, addressing grammar or spelling in isolation. Grammarly's NLP engine, however, facilitates real-time synthesis. It analyzes the "5 Cs" simultaneously, ensuring that a correction in "Correctness" does not negatively impact "Clarity" or "Conciseness." This process goes beyond error detection. It performs a deep contextual parsing that evaluates how a human reader perceives the text. This allows the student to see their writing as an integrated system of meaning rather than a collection of disparate rules.
- **Cluster 2:** From correction to metacognition (Steps 03-04). The true value of this tool lies in the transition from passive correction to active engagement. Far from offering a superficial 'fix' for issues like dangling modifiers or tonal inconsistencies, the system's intervention compels students to engage in a form of deliberate, strategic linguistic deliberation. By spotlighting these nuances, it shifts the focus from passive correction to an active, purposeful negotiation of meaning. The student must evaluate the suggestion: *"Does this change my intended meaning? Why is this alternative more effective?"* This critical interaction leads to internalizing the "editor". Over time, the student develops an internal monitor—a prosodic awareness—that allows them to anticipate linguistic pitfalls even before the digital tool intervenes.
- **Cluster 3:** Actionable linguistic theory (Steps 05-06). Linguistic theory is often too abstract for students to apply effectively during the pressurized moment of creation, [19]. The Synthesis Model provides theoretical scaffolding, transforming complex insights into immediate, situational feedback. This creates a continuous feedback loop. Writing is redefined as an iterative process of drafting, receiving feedback, reflecting, and refining. By functioning as a "tireless digital tutor," the tool makes the theoretical engine of NLP actionably accessible, ultimately cultivating more autonomous and reflective writers.

The movement depicted in Fig. 9 suggests that the educator's role is not diminished by the presence of AI; rather, it is clarified. By outsourcing the 'real-time synthesis' and 'theoretical scaffolding' (Steps 01, 05, 06) to the digital ally, the teacher is liberated to mentor the student specifically on the 'active engagement' and 'internalization' phases (Steps 03, 04). This demonstrates that the technology acts as the

foundation upon which higher-order critical thinking is built. The synthesis is not merely technical—it is pedagogical.

IV. PRACTICAL CLASSROOM APPLICATIONS: CASE STUDIES

The transition from linguistic theory to empirical practice is where Grammarly demonstrates its pedagogical value. AI-supported procedural scaffolding allows for a transition from a product-oriented to a process-oriented writing instruction, [21]. While Grammarly acts as a micro-level editing assistant for the student during drafting, generic LLMs serve as macro-level analytical engines for the educator. By utilizing them in tandem, we can automate the analysis of uncorrected texts, shifting our focus from being "correction machines" to becoming mentors of critical thought, [22].

A. Supporting L1/Language Learning

In L1 contexts, the primary challenge is often shifting the student's focus from "finishing" to "revising."

Allowing software to manage the mechanical side of proofreading gives students an immediate, data-driven window into their own writing habits. It is quite a different experience to see a passive phrase—like *'The comma is misplaced'*—transformed into a sharp, active one. That isn't just a quick fix; it is a lesson in taking charge of one's own text. These platforms basically work as a high-level vocabulary coach. Moving from a basic verb like *'felt sad'* to a scholarly one like *'lamented'* helps students bridge that gap between casual talk and the precise language their discipline requires.

B. Enhancing Foreign Language (L2) Learning

For L2 learners, immediate feedback is a critical component of interlanguage development. Grammarly acts as a corrective mirror that specifically targets common errors resulting from L1 interference.

Literal translations, such as the persistent *'I have eighteen years'* error, highlight how L1 interference can frequently undermine a student's fluency. In these specific scenarios, the immediate nature of an automated feedback loop proves invaluable. Greek learners, for instance, often grapple with prepositional nuances or aspectual errors—typical examples include *'music from the radio'* instead of *'on,'* or using *'I write the email for two hours'* when the perfect continuous is required.

When the software isolates these discrepancies, it offers more than a simple correction; it provides a timely intervention in the underlying logic of English grammar. This utility extends to the mastery of social register as well. A student might inadvertently use a blunt phrase like *'Want to know if...'* in a formal email to a professor, but by suggesting *'Would you like to know if...'*, the tool guides the writer through the nuanced expectations of professional communication.

C. Interdisciplinary Value: Disciplinary Literacy

Beyond language-specific instruction, Grammarly's utility

extends across the curriculum, supporting students in subjects that demand specialized communication.

An analytical essay can easily turn into a maze of tangled sentences. In literature, students often struggle to keep their ideas clear when the arguments get complex. This is where the software really helps—it functions as a structural filter, making sure the actual analysis doesn't get buried under poor phrasing. It's the same story in history or science, though the focus there is more about staying objective. The tool focuses on informal phrases like *'lots of'* and replacing them with more professional terms like *'numerous.'* It's less about simple correction and more about helping the writer build the kind of formal authority that academic work requires.

V. AI-ASSISTED DIAGNOSTIC ASSESSMENT: THE 5-STEP DIAGNOSTIC WORKFLOW

One of the most profound administrative challenges in writing instruction is the "evaluation bottleneck"—the exhaustive process of providing detailed feedback to large cohorts of students. To address this, we introduce the AI-Assisted Diagnostic Assessment model, which leverages Large Language Models (LLMs) as analytical engines to support human judgment rather than replace it.

This model is complementary to the use of Grammarly and is operationalized through the 5-Step Diagnostic Workflow (cf. Fig. 10). To understand the operational dynamics of this workflow, it is essential to observe the color-coding protocol used in the visual representation: the yellow text signifies the teacher's proactive pedagogical actions and strategic interventions, while the white text indicates the automated processes and descriptive outputs generated by the AI engine.

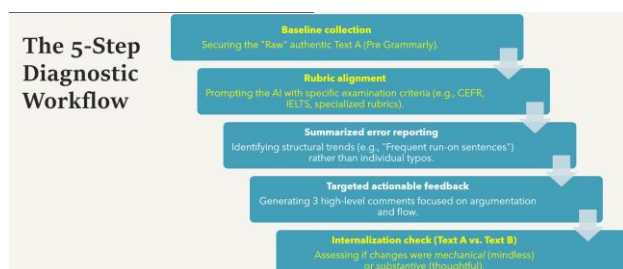


Fig. 10: The 5-Step Diagnostic Workflow: Integrating Teacher Strategy with AI Efficiency. Source: Created by the author.

Everything begins when the educator secures 'Text A'—the raw, original work a student produces before any software has a chance to touch it. This initial capture is vital; it's the only way to see a student's genuine baseline and get an unvarnished look at how they handle language and logic on their own.

From there, the instructor sets the ground rules by feeding the AI specific rubrics, such as CEFR or IELTS standards. This prevents the analysis from being too generic and forces the tool to align with the actual goals of the classroom. With these parameters in place, the AI handles the heavy lifting of data processing. It ignores simple typos—the kind of thing

Grammarly usually catches—and focuses instead on deeper structural habits, like whether a student's paragraphs connect. This leads to a diagnostic overview that highlights major blind spots. The system drafts three targeted suggestions about the argument's flow. Crucially, the teacher stays in the loop here, reviewing every machine-generated comment to make sure the final advice remains pedagogically sound and, most importantly, human-centered.

Finally, the teacher compares the raw Text A with the Grammarly-corrected Text B. The primary objective is to assess the nature of the student's revisions: were the changes mechanical (mindless)—only accepting AI corrections—or substantive (thoughtful)—where the student utilized the feedback to restructure their arguments? This comparison allows the educator to grade the process of learning and the internalization of linguistic concepts, moving from mere correction to true assessment of development.

Looking at Fig. 10, the split in responsibilities is both clear and deliberate. The teacher holds the roles of *architect* and *evaluator*, while the AI handles the analytical middle ground. This setup is a practical answer to the administrative burnout that so often comes with manual diagnostic work. By letting the AI handle the repetitive task of spotting trends, educators can save their mental energy for the internalization check—the part of the process that demands deep human insight. It effectively moves the teacher away from being a mechanical 'error-hunter' and toward the more significant role of an 'intellectual coach' who can focus on a student's actual argumentative growth. What this 5-step workflow really proves is that AI's real strength doesn't lie in the tool itself, but in how it's framed by a teacher's own pedagogical vision.

Conclusively, while Grammarly operates as a micro-level editing assistant (focusing on the 5 Cs), generic LLMs like ChatGPT are utilized in this model as macro-level analytical engines for diagnostic assessment. These tools function complementarily; the former assists in the iterative drafting phase, while the latter supports the educator in administrative and strategic assessment tasks.

VI. SUGGESTED STRUCTURED STUDENT WORKFLOW: THE 5-STEP PROTOCOL

To prevent AI from becoming a *"corrective crutch"* and ensure it remains a strategic partner, this research proposes a mandated, five-part pedagogical protocol (cf. Fig. 11). This workflow is designed to explicitly integrate Grammarly into the writing process, providing a clear path for students to move from raw drafting to a sophisticated final product. The rationale behind this protocol is the isolation of cognitive loads—allowing the student to focus on one dimension of writing at a time.

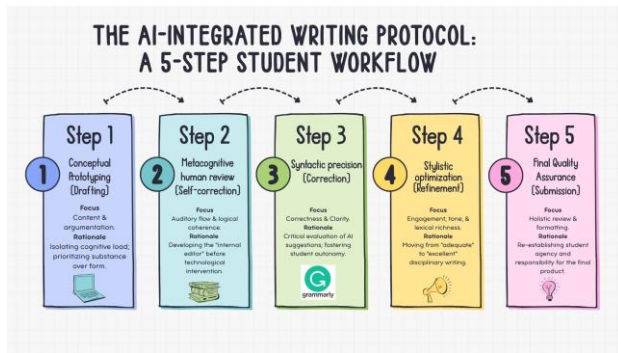


Fig. 11: The 5-Step Student Writing Protocol: Scaffolding Autonomy and Metacognition. Source: Created by the author.

Initially, students are instructed to focus exclusively on content, arguments, and evidence. The mandated goal is to produce a complete first draft without any concern for grammar, spelling, or mechanics. By explicitly removing the anxiety associated with traditional corrective feedback at this stage, we mitigate cognitive overload, allowing the student's brain to dedicate its full resources to the higher-order task of building a persuasive narrative or an analytical claim. During this stage the cognitive focus lies on the content.

In the next stage, before any digital intervention, we view the Human Review phase. Students are required to read their draft aloud, which activates their "internal editor". This step is vital for developing prosodic awareness—the ability to hear the "music" of language and recognize awkward phrasing or logical leaps through human intuition. As noted in recent studies, students who engage in this self-correction phase are less likely to over-rely on AI suggestions in later stages, [16], [21]. Therefore, during this stage the cognitive focus lies in logical flow.

Once the student is satisfied with the logic, they paste the text into Grammarly (stage 3). The focus here is strictly on Correctness and Clarity. The student is not a passive recipient; they must critically evaluate each suggestion. The pedagogical goal is for the student to ask: "Does this suggestion truly improve my meaning, or does it strip away my unique voice?" This habit of "interrogating the machine" transforms passive consumption into an active dialogue, [4], [19].

During the fourth stage, the student reviews Grammarly's suggestions for style and tone. They work to replace weak verbs, remove pleonastic expressions, and ensure the tone is appropriate for the disciplinary register (e.g., maintaining objectivity in a Science report). This step facilitates the transition from a "correct" text to an "excellent" and professional one.

The final stage re-centers authorial ownership. The student performs a final holistic check to ensure that no human errors were introduced during the revision process and that all citations are correctly formatted. By taking responsibility for the final "polished" product, the student reinforces their role as the primary architect of the work.

VII. THE TRIALOGUE: TEACHER, STUDENT, AND AI

The pedagogical relationship, which we term the "trialogue" (cf. Fig. 12). This model moves away from the traditional binary relationship between teacher and student, introducing AI as a third, consultative entity, [23].

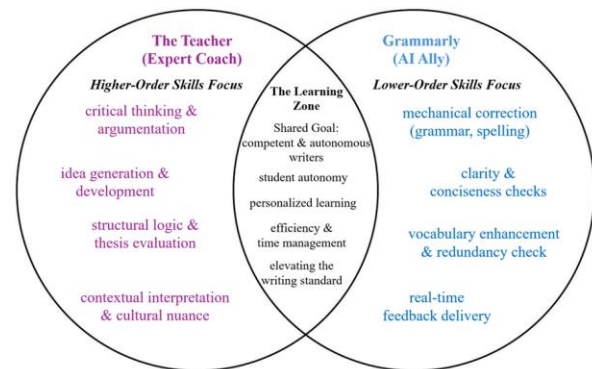


Fig. 12: The Trialogue Model: The synergistic relationship between Educator, Learner, and Technology. Source: Created by the author.

A. Elevating the teacher's role

By outsourcing the mechanical, lower-order work of error spotting to Grammarly, the educator is liberated to focus on the skills that truly require human expertise. We move from being "mechanics of language" to being "coaches of critical thought", [24]. The teacher's energy is redirected toward:

Critical thinking and argumentation: Mentoring students on the strength and logic of their claims.

Organizational logic: Helping students structure complex ideas at a macro-level that AI currently cannot master, [8].

Voice and personal style: Recognizing and cultivating a student's unique authorial persona, ensuring it is not "overwritten" by the algorithmic standard.

B. Fostering student autonomy

Grammarly acts as an autonomous formative feedback system that supports, rather than dictates. The selective acceptance of AI suggestions fosters a deeper understanding of linguistic rules in context. Students develop "metacognitive agility," becoming more competent and confident writers who can focus on what they want to communicate rather than being paralyzed by how to say it correctly, [7], [13].

VIII. DISCUSSION: CHALLENGES, ETHICS, AND THE DIGITAL DIVIDE

While the benefits of the "scaffolded partnership" are clear, we must address the base of the "AI Feedback Iceberg"—the structural risks. A primary concern is the digital divide, [7]. Research warns that if only certain students have access to premium AI features or stable high-speed internet, technology may exacerbate educational inequalities, [10].

Furthermore, success in this new landscape depends entirely on AI Literacy. As identified in 2025 research, this includes

five essential competencies: the ability to understand how AI works, access the appropriate tools, prompt the models effectively, corroborate the AI's output with human knowledge, and incorporate suggestions critically, [3], [11]. Without this literacy, the risk of "AI dependency" and the erosion of divergent thinking remains significant, [9], [20]. In conclusion, AI should be viewed as a "novice teacher"—it shows unexpected promise but requires human oversight to ensure nuance and ethical integrity.

IX. CONCLUSION

The shift toward using Grammarly as a digital partner effectively retires the old-school 'red-ink' teaching style. It is a clean break. The point here isn't to phase out the educator, but to clear the deck for much more demanding intellectual work. When software absorbs the monotonous task of fixing syntax, space finally opens for the messy, high-stakes parts of writing—like building an airtight argument or finding a voice that resonates. Thriving in this new landscape requires a strange kind of teamwork with the machine. We aren't abdicating our roles. We are simply using the tech to handle the boring stuff, leaving us free to do the intellectual heavy lifting that no algorithm can touch.

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Contribution of individual authors to the creation of a scientific article (ghostwriting policy)

Sofia Tsakalidou has conducted the systematic literature review and analyzed the data from the 15 selected studies (2018-2025). Sofia Tsakalidou was responsible for the conceptualization and design of the pedagogical models, specifically the "AI-Assisted Diagnostic Assessment" framework and the "5-Step Structured Writing Protocol." Sofia Tsakalidou developed the theoretical framework regarding Natural Language Processing (NLP) and the "5 Cs" analysis. Sofia Tsakalidou has also organized the interdisciplinary case studies and carried out the entire writing and final editing of the article.

Sources of funding for research presented in a scientific article or scientific article itself

The author received no financial support for the research, authorship, and/or publication of this article.

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