

AI-Assisted Performance and the Development of the L2 Writer

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<https://doi.org/10.5281/zenodo.23340036>

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Abstract

Generative artificial intelligence (GenAI) has changed the conditions of L2 writing revision and feedback. There is an increasing body of evidence that GenAI support may enhance the quality of text produced under supported conditions. However, an enhanced GenAI-assisted text does not necessarily indicate that the writer has acquired the linguistic, rhetorical, metacognitive or self-regulatory ability to write independently. A conceptual-critical article reviews the problem of using assisted performance as evidence of writer development in AI-mediated L2 writing studies. The article draws on L2 writing, written corrective feedback, automated writing evaluation, learner agency and emerging GenAI research to distinguish assisted performance from writer development. The argument is that the unit of evaluation should not be limited to the supported performance of the AI-supported text, but it should be extended to what the writer can do later with less or no assistance. The article develops a distinction among assisted performance, revision uptake, learning and independent transfer and concludes with a research perspective in which supported performance, delayed no-AI writing and transfer are considered as different types of evidence. The main claim is that AI-writing studies should consider not only whether artificial intelligence can help learners produce better

texts, but whether its use can lead to the development of writers who can perform comparable writing activities without support.

Keywords: generative artificial intelligence; L2 writing; writer development; AI-assisted performance; independent writing; transfer; revision; feedback

1. Introduction

GenAI has added basic confusion to L2-writing research by changing what a learner produces and what a learner can produce on her own. L2-writing development has traditionally been interested in how writers gradually gain control of idea generation, discourse organization, word choice, sentence formulation, revision and academic-genre participation. LLMs can now carry out or largely mediate such operations, which means that some of the work of language and rhetoric can be shared between the learner and the system. Recent work therefore suggests that GenAI is not simply another writing resource, but a technology that changes how writing is done, learnt and assessed (Hyland, 2026; Kessler, 2026; Li, 2025).

This redistribution produces a real inferential problem: a writer can produce a substantially flawless and more conventionally academic text with GenAI support without ever executing the linguistic and rhetorical operation that produces this improvement on its own. Evidence of improved text cannot thus be taken as equivalent evidence of writer control. Recent evidence of AI-supported writing demonstrates the same distinction directly: a supported improvement can occur while a subsequent no-AI performance may diverge significantly, which means the supported performance cannot be taken as the equivalent of independent capability (Chen, 2026). The question is thus not only if GenAI makes the text better, but what improved AI-supported performance can be taken as evidence of L2 writer development.

Recent scholarships make this question increasingly important. Kessler (2026) identifies learning processes and outcomes as a major research theme for GenAI and L2 writing. Craven and Fredrick (2026), in a scoping review of 185 empirical studies, report that research has concentrated on feedback quality, AI–human comparisons, learner perceptions, and writing outcomes, while learner uptake and deeper learning outcomes remain less consistently investigated. Crosthwaite and Sun (2026), reviewing 51 GenAI-mediated L2 written-feedback studies, similarly find a strong concentration on writing quality and perceptions, with varied patterns of feedback uptake and revision.

The issue, then, is not that the AI-assisted writing research has no evidence of improvement. The issue is a conceptual one of the objects and evidence of improvement. Where a learner employs GenAI to find an error, reformulate a sentence, fine-tune a lexical choice, improve cohesion, or reorganize an argument, the text can demonstrably become better in terms of its linguistic or rhetorical quality. The work on automated writing evaluation and GenAI-mediated feedback offers proof of technologically mediated feedback to the enhancement of writing quality and revision (Ding et al., 2026; Zhai & Ma, 2023).

However, the improved text is generated in a distributed learner-AI configuration. It is evidence of what the learner can do under a specific technological affordance and support condition, not direct evidence that the learner has acquired the knowledge, control or choice that explains the change. This difference is important because the same improvement can result from different distributions of responsibility between the learner and the system (Chen, 2026; Hyland, 2026). Improved output under AI support should therefore be treated as evidence of supported performance until there is evidence that the capability has become available to the learner outside that configuration.

The article therefore focuses on one problem, whether AI-assisted performance can be interpreted as evidence of L2 writer development, and agency,

feedback literacy, authorship and cognitive offloading are discussed where they clarify that distinction. It contends that better supported performance and better independent writing are related but not equivalent outcomes.

2- Materials and Methods

This article takes a critical conceptual approach to the link between AI-assisted writing performance and L2 writer development. It uses relevant literature on L2 generative AI writing, written feedback, engagement, revision and L2 writing development to examine the assumptions that connect improvement in AI supported texts with changes in independent learner writing. Instead of collecting primary empirical data, the article develops a five-level analysis of AI-assisted performance, feedback response and revision, targeted capability change, delayed or changed-condition transfer and L2 writer development, and considers what each level can support and how far performance or revision uptake can be treated as learning evidence. This provides a basis for rethinking how AI-mediated writing research reasons about development, agency and independent writing capability.

3. The Problem of Better Texts and Better Writers

Academic writing cannot be regarded as a problem of creating acceptable sentences. The writers of academic genres must decide on stance, evidence, organization, cohesion, disciplinary positioning, vocabulary, grammar and purpose. Hyland (2009) considers academic discourse as socially situated and as contributing to disciplinary knowledge, whereas Swales (1990) considers academic genres as organized social activity rather than as neutral containers of grammatical correctness. The process of learning to write is thus regarded as the development of the ability to make and justify writing choices as against the production of a text which will justify them.

GenAI consequently makes the relationship between visible textual performance and writer capability harder to infer, and the problem is most acute in

revision, where the second version may be better for reasons that have less to do with the learner having independently increased their controlled writing and more to do with the learner having interacted with the technological mediation (Hyland, 2026; Chen, 2026). A learner could submit a draft, have an AI reformulate it, accept the change, and write a considerably smoother second version. Performance-wise, the movement is a good one: the second version is more accurate, coherent or academic. Developmentally speaking, the relevant questions are different. Did the learner recognize the first problem? Did the learner understand why the change was the one to make? Did the learner learn a principle the decision can recur from? Can the learner reproduce the operation elsewhere? Can the learner execute it later without the AI? The questions separate feedback uptake and later learning, as accepting a suggested change is not itself evidence that the learner has understood, retained and independently operated on the linguistic or rhetorical knowledge (Liu & Storch, 2023). L2 corrective-feedback research also indicates that fixing an immediate text does not transfer to an immediately subsequent text, which is why new-task evidence is the most productive source of developmentally plausible claims (Karim & Nassaji, 2020).

These questions separate uptake from learning. L2 written-feedback studies have shown that learners can use feedback in revised texts without necessarily using it in a way that creates deeper learning or transferable knowledge (Liu & Storch, 2023). Corrective-feedback research has separated immediate revision performance from later writing performance, so transfer is a particularly useful source of evidence when the claim is developmental (Karim & Nassaji, 2020; Zabihi & Erfanitabar, 2024). We can therefore treat accepting an AI suggestion as evidence of uptake or decision making in the interaction and not as evidence of durable linguistic change on its own.

These questions expose a measurement problem. If the research is on the difference between Draft 1 and Draft 2 it may measure successful revision and not learning. If the intervention group produces a better final text than the control group,

the research may show an effect on supported performance and not on durable development. The improvement of the text is important, but the improvement of the text and the development of the writer should not be regarded as identical. Research on written corrective feedback provides a conceptual antecedent. Giving, processing, revising and later development are not the same (Bitchener, 2012; Ferris et al., 2013). GenAI makes the distinction sharper. The more a system can generate a complete linguistic answer to a writing problem, the less the final text alone reveals about the learner's contribution to the answer.

4. AI-Assisted Performance as a Distinct Construct

AI-assisted performance is the quality of writing a learner produces with an AI system under given conditions of technological support. It is not illegitimate. Modern academic writers use dictionaries, corpora, references and online resources. Kessler (2026) claims that the research question should be when GenAI should be used for L2 writing and when it should not, instead of whether it should be used.

Automated writing evaluation research shows that technologically mediated feedback can contribute to writing quality gains where such feedback is part of an extended writing activity and learning support (Nunes et al., 2022). GenAI can make such dynamic, contextualized linguistic mediation available at several points in the text production process: diagnose a grammatical or lexical issue, suggest a replacement, restructure a clause or a whole discourse unit, generate an example in context and reduce the formulation load of L2 production.

Yet supported performance raises a counterfactual question. What could the learner do if the system were absent? A supported text reports a learner-plus-system configuration, while an independent text is better evidence of residual learner capacity. Chen (2026) makes the distinction explicit. She reports supported performance, independent no-AI outcomes, and asks whether competence remains once the assistance has been removed.

AI-assisted performance should therefore be considered as a separate construct and not as a substitute for development. The learner may become very effective in terms of coordinating, at surface-level, with the AI while making minimal progress in terms of the underlying skills or predispositions to write without GenAI intervention. Conversely, independent development and scaffold learning requires a holistic AI-mediated system that not only responds to linguistic and rhetoric facets, but also taking SLA predispositions, learner agency, and epistemic ownership. The focal point in this research is to separate these alternatives.

5. From Revision to Learning

Reconstruction is also a place where AI assistance can both support and conceal learning. In the conventional L2 writing research, revision is evidence of response to feedback and of change between drafts. AI-mediated revision adds a third possibility, that the change may have been provided by external linguistic production rather than generated by the reformulation of the learner. Kang and Kim (2026), for instance, focus on the joint work of AI feedback, uptake and subsequent individual revision in an EAP setting, while Crosthwaite and Sun (2026) document variation in uptake and revision across the GenAI feedback literature.

Uptake should not be taken as learning. The learner may correctly adopt an AI correction without establishing stable control over the L2 form. For instance, changing "The results indicates" to "The results indicate" is an example of uptake but the new form does not explain whether the learner has processed the agreement relationship or has simply accepted the AI text. In terms of SLA, uptake shows immediate behavioral change. Development needs evidence of durable transferable control in subsequent independent performance.

AI-assisted performance should be considered a separate concept and not a stand-in for L2 writer development. The learner can become better at managing prompts, judging outputs, choosing among alternatives and incorporating AI-produced language while making smaller gains in the linguistic competence of

writing without GenAI support. AI mediation can also be developed when the learner must focus on linguistic form, judge alternatives, explain changes and make important choices and then recycle the newly acquired knowledge beyond the immediate episode. The developmental issue is therefore not if the learner can produce a better text with AI help but whether interacting with AI adds to the ability to generate, judge, correct and control L2 language without it (Chen, 2026; Hyland, 2026; Kessler, 2026).

This distinction also has implications for the wider conditions in which AI-mediated learning takes place. Development cannot be measured by the quality of the resulting text in terms of the language used; it consists of the developing control learners exercise over linguistic and rhetorical resources, in the decisions through which such resources are enacted, and the extent to which that control becomes independent and transferable. AI-mediated writing can be described as a distributed activity system in which the distribution of linguistic work between the learner and the technology may be varied. The developmental criterion is then not the elimination of the learner effort but whether the mediation offered by the AI contributes to the increasing appropriation of the linguistic and rhetorical work that the system initially supports (Hyland, 2026; Kessler, 2026).

The conceptual difference can be stated in four non-equivalent senses. Feedback exposure is the condition that the intervention is present. Uptake is the condition that some or all of it is adopted. Learning is the condition that relevant knowledge or control is acquired. Transfer is the condition that knowledge is applied in a new environment without equivalent help. Moving from the first condition to the last should not be assumed.

6. What Does It Mean to Develop the L2 Writer?

Focusing on the writer rather than writing requires a broader definition of development than reduction of errors. The L2 writer develops when the learner has more control over linguistic and rhetorical resources and can use them in purposeful

ways through shifting communication conditions - linguistic knowledge, procedural control, genre knowledge, revision capacity, evaluative judgment, and context-sensitive judgment.

This view is consistent with the developmental logic of feedback research as well. The value of corrective information lies in how the learners deal with it, rather than in the mere receipt of information (Bitchener, 2012; Ferris et al., 2013). This is a more important consideration in AI mediated settings, as the system can generate the target form itself, and the key pedagogic issue is whether the interaction with the system generates the opportunity to appropriate the information or replaces the linguistic and rhetorical activity.

7. A Conceptual Framework: Assisted Performance → Writer Development

The central framework proposed here distinguishes immediate effects of AI support from evidence of durable writer development.

Table 1

Evidence and Inferential Boundaries in AI-Mediated L2 Writing				
level of evidence	guiding question	Guidance	Evidence	Interpretation
. AI-assisted performance	What can the learner–AI configuration produce for a given task and assistance condition?	Wha	AI-	Demon
. Feedback response and revision	How does the learner respond to AI-mediated feedback?	How	Accept	Indicate

			& Sun, 2026; Du & Chen, 2026).	comprehension, retention, or acquisition (Liu & Storch, 2023; Craven & Fredrick, 2026).
		Has	Learner	Support
.	Targeted a particular linguistic, rhetorical, or evaluative capability change	explanations, control of the target feature, and delayed measurement capability improved?	repeated control of the target feature, and delayed measurement (Karim & Nassaji, 2020; Zabihi & Erfanitabar, 2024).	s a bounded learning claim, but not necessarily a broad or durable claim about L2 writer development.
		Can	Delaye	Provide
.	Delayed or the learner use the changed- capability when AI support or task conditions change?	d, reduced-support, no-AI, or comparable new-task performance (Chen, 2026; Karim & Nassaji, 2020).	s evidence of transfer beyond the original learning episode, but is not by itself sufficient to establish sustained L2 writer development.	
		Has	Longitu	Support
.	L2 writer development	the learner's writing capacity changed sustainably across tasks and over time?	dinal, cross-task evidence of sustained and adaptive linguistic and rhetorical control (Hyland, 2026; Kessler, 2026).	s a developmental claim, while the contribution of AI must be interpreted alongside instruction, learner engagement, and task conditions (Kessler, 2026).

Note. The levels represent increasing inferential strength, from situated AI-assisted performance to evidence of sustained L2 writer development. The key concepts represented in each phase should therefore be treated as related but non-equivalent constructs.

Results

8. What This Changes in AI-Writing Research

The pressing development question is thus procedural control of the link between form, discourse function and meaning, since a learner can be helped by the

AI-mediated paragraph restructuring that is possible and yet be unable to reproduce the rhetorical operation in another task, and repeated work with alternatives, explanation and revision choices can lead to more secure control. Improvement under the AI should therefore initially be interpreted as performance in the specified learner-AI configuration rather than as direct evidence of learning or writer development, and stronger claims will require that the capability is retained over time, transferred to new settings, and becomes available with less or no technological support (Chen, 2026; Karim and Nassaji, 2020; Zabihi and Erfanitabar, 2024).

In parallel with that, revision uptake should be recorded as process evidence rather than a development point. The researchers can record acceptance, modification, rejection and learner-generated options. Recent studies have shown that uptake is different based on feedback source, task and depth of revision (Kang & Kim, 2026; Crosthwaite & Sun, 2026). The stronger question is not merely how many suggestions the students accept, but what the students can do afterwards.

Aligned with that, the variation between assistance and substitution should be stated explicitly. Darvishi et al. (2024) reports that learners can be observed to rely on AI instead of learning from it. This does not prove that AI must make writing development weaker, but it explains why staying at the same level with the assistance cannot be treated as independent development. The recent work on independent writers also indicates that AI-mediated learning may enhance self-regulation if evaluative responsibility remains with learners (Liu et al., 2026).

Discussion

9. Implications for AI Writing-System Design

An AI optimized for textual quality will therefore tend to replace the very linguistic and rhetorical operations the learner has reason to perform, while a development-oriented system should leave such judgment to the learner by making the problem available, supplying explanation or contrastive options and asking the learner to choose among them (Hyland, 2026; Liu and Storch, 2023). Such mediation

does not have to make every interaction into explicit teaching, since support can be graduated by task, moving from diagnosis and explanation through exemplification and constrained alternatives to direct intervention where stronger support is needed, which changes a textual optimizer into a scaffold for the acquisition of control and for rhetorical judgement.

Hyland (2026) contends that GenAI is transforming the processes and purposes of writing, writing development and writing assessment, while also creating risks of deskilling and shifting authorial accountability. The important design question for AI-mediated writing, therefore, is: does the learner still carry the substantive responsibility for the linguistic and rhetorical work through which writing competence is developed or is that responsibility being transferred to the machine?

Each substantive AI-mediated improvement should be followed by an occasion to perform the targeted operation independently, whether it is a grammatical operation that AI corrected repeatedly, or discourse organization that AI supported. Mediation should be designed around scaffold fading, retrieval and transfer, in which responsibility for performance moves from system-supported to learner-controlled (Karim & Nassaji, 2020; McDermott, 2021; van de Pol et al., 2010). This movement is required because a successful assisted revision does not by itself establish that the capability has been retained or transferred to subsequent writing (Karim & Nassaji, 2020).

9- Implications for research design

First, future work should operationally separate AI-supported performance from independent writing performance rather than equating the two as measures of L2 development. A post-test taken under the same AI condition as the intervention can show whether performance is maintained in the learner-AI configuration, but it cannot by itself show that the learner has acquired the capacity to perform the operation independently. This difference has become an empirical issue because

recent evidence suggests that gains made under AI-supported writing may not transfer completely to supervised no-AI writing (Chen, 2026).

A stronger developmental design would therefore embed a supervised no-AI check in which comparable writing operations are performed with no equivalent external mediation, and where feasible include a delayed post-test of retention and a changed-task condition of transfer. L2 corrective-feedback research provides a useful precedent for studying subsequent and delayed writing rather than immediate revision performance alone (Karim & Nassaji, 2020), and such a design would enable a distinction to be made between the immediate supported performance and increasingly stable, transferable and independently controlled L2 capacity. The current design is therefore vulnerable to the opposite inference, that an improvement in the AI text is taken as evidence of a corresponding writer change.

10. Conclusion

Generative AI makes a deeper problem in L2 writing research its own. Better text does not follow from improved competence if the AI can externalize the lexical selection, syntactic formulation, cohesion, stance and revision that writing competence consists of (Hyland, 2026; Kessler, 2026). The applied-linguistic question is who controls the linguistic work generative AI makes possible, not what the learner produces. AI-assisted performance reports capability in a distributed learner-AI configuration; L2 writer development needs evidence that the mediation it engages with becomes increasingly internalized, transferable and controlled. Revision uptake should be read as evidence of interaction with mediation rather than as evidence of learning (Liu & Storch, 2023).

This separates the context of independent performance and transfer, and the practical question of AI-mediated L2 writing research is not whether AI makes a text better, but whether interacting with AI alters what the learner can subsequently formulate, evaluate, revise and control with no such support. L2 writing evidence indicates that immediate revision gain does not transfer to later writing, which is

why assisted performance should be distinguished from durable capability (Karim & Nassaji, 2020). Target-likeness is a characteristic of the product. Linguistic control is a characteristic of the writer. A text can improve and the writer's independent capability remains unchanged. Technological mediation should be assessed on whether it ultimately increases learner control or replaces it as the measure of the developmental value of GenAI.

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