



## Description

In 2024, [a real-world study](#) found that AI-generated exam answers went undetected in 94% of cases and often attained higher marks than student submissions, prompting urgent debate about assessment design and academic integrity. This statistic highlights a dual reality: generative AI can deliver rapid gains in clarity and readability, yet its misuse or uncritical adoption risks eroding the fundamental skills researchers rely on: critical thinking, original argumentation, and clear scholarly expression. This article defines what over-dependence on AI looks like, examines when and why it becomes harmful, and presents practical strategies researchers and institutions can adopt to develop writing skills that AI cannot replace.

## How is AI-assisted writing different from human writing?

AI can increase fluency and accessibility and reduce linguistic inequality for non-native speakers. However, human writing integrates epistemic judgment, ethical appraisal of sources, and novel synthesis elements that require tacit disciplinary knowledge, contextual sensitivity, and intellectual risk-taking. The aim is not to oppose AI, but to ensure it augments rather than replaces human scholarly capacities.

## What is over-dependence on AI?

Over-dependence refers to habitual reliance on generative or editing tools to perform cognitive tasks: idea generation, structure development, argument refinement, or even final phrasing without sufficient human oversight, learning, or attribution. Generative large language models (LLMs) produce plausible text by predicting word sequences; they do not possess understanding or contextual judgment. For clarity, *assistive AI* denotes tools used to support drafting, editing, and literature-search workflows, whereas *generative AI* denotes systems that create novel passages or syntheses.

## When does over-dependence typically arise?

Over-dependence often emerges at key pressure points in academic workflows: tight deadlines; language proficiency challenges; unfamiliar genres (e.g., grant proposals or systematic-review methods); and the iterative revision stages where convenience can replace skill development. Cross-journal analyses indicate that many authors [declare AI use for readability and grammar improvement](#),

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showing prevalence of these tools for polishing rather than core intellectual tasks.

## Why over-dependence is problematic for academic writing

**First, deskilling and diminished cognitive engagement.** Experimental work and media-reported studies suggest that habitual use of LLM outputs can reduce active engagement with source material and weaken memory consolidation and critical analysis. One [recent study](#) reported reduced neural engagement when participants relied on AI for essay writing, raising concerns about longer-term effects on critical thinking.

**Second, compromised originality and epistemic risk.** LLMs generate text by recombining patterns from their training data; they can hallucinate facts or reproduce subtle biases. Editorial analyses and educational resources list frequent pitfalls such as logic errors, informal style, and factual inaccuracies risks that can undermine the credibility of manuscripts submitted to peer-reviewed journals.

**Third, assessment and integrity challenges.** A University of Reading [study](#) illustrates how undetected AI use can subvert assessment norms and blur responsibility for content, increasing the potential for misconduct in both student and researcher contexts.

**Fourth, stylistic homogenization and metric gaming.** [Large-scale text analyses](#) report that LLMs are shifting lexical patterns and simplifying syntactic structures in research abstracts, potentially reducing variety in scholarly discourse and making style-based [peer review](#) or novelty detection harder.

## How to preserve and strengthen writing skills that AI cannot replace

Developing AI-resilient writing is both a pedagogical and practical endeavor. The following strategies focus on transferable, human-centered competencies.

1. **Emphasize conceptual scaffolding before drafting.** Encourage structured prewriting: define operational terms, outline the research question, and map argument flows. When authors first build a conceptual scaffold, subsequent drafting whether human or AI-assisted remains anchored to disciplinary reasoning. This step protects against passive acceptance of fluent but shallow AI text.
2. **Treat AI as a tutor, not as an author.** Use generative tools to generate outlines, alternative phrasings, or counterarguments, then require human revision that adds disciplinary insight and explicit source attribution. Institutional policies and journal guidance increasingly call for disclosure of AI use in manuscript preparation; adopt these disclosure practices proactively.
3. **Use iterative, evidence-focused engagement.** Translate literature into annotated summaries, extract evidence tables, and write short synthesis paragraphs without AI assistance. Compare those human drafts with AI revisions to identify conceptual gaps and build synthesizing skills.
4. **Practice targeted rewrites and memory recall.** Assign short timed exercises where authors must rewrite core paragraphs from memory or explain an argument aloud. Such exercises strengthen retention and critical structuring of ideas capacities that AI does not internalize.
5. **Build disciplinary rhetorical fluency.** Workshops on field-specific conventions (methods reporting, result interpretation, theoretical framing) are more valuable than generic grammar checks. [Evidence shows](#) LLMs benefit non-native authors by improving lexical quality, but

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disciplinary nuance still requires human judgment. Use AI to iterate on phrasing, then apply human checks for methodological precision and conceptual coherence.

## 6. Develop judgment for Meaning and Context

A core skill for research writers is the ability to judge whether content – be it AI-generated or human-written – fits the context of the argument or research. This ability will allow research authors to leverage AI to their advantage.

## How institutions and supervisors can help

Supervisors should model balanced AI use: approve AI for language polishing but insist on human-authored conceptual sections. Assessment designers should shift toward formats that test applied reasoning oral defenses, in-person write-ups, or project-based assessment reducing incentives for blind AI substitution. Publishing offices and journals are already updating policies that require [AI disclosure](#); research teams should align with these evolving norms.

## Examples and evidence from recent studies

The University of Reading [blind test](#) (reported in PLOS ONE and institutional communications) demonstrated vulnerability in traditional assessment formats when AI-generated exam responses were submitted unmodified and went largely undetected. The study prompted calls for assessment redesign and clearer institutional guidance.

A [mixed-methods intervention with ESL undergraduates](#) found that using ChatGPT as a formative feedback tool produced measurable short-term improvements in writing scores when integrated into scaffolding activities and supervised practice underscoring that AI can be pedagogically beneficial when framed as feedback rather than a shortcut.

Large-scale text analyses indicate [measurable lexical and syntactic shifts](#) in abstracts after widespread LLM adoption, which suggests systemic stylistic changes in the literature that merit further study and editorial attention.

## Common mistakes to avoid

- Allowing AI to draft final sections without human conceptual editing.
- Using AI as the sole reviewer for content accuracy or reproducibility claims.
- Omitting disclosure of substantive AI assistance in manuscript preparation.
- Treating AI-detector results as definitive proof of authorship or misconduct detectors are imperfect and can generate false positives or negatives.

## Actionable next steps for research writers

- Integrate short practice sessions in which authors draft key paragraphs without AI, then iterate with AI for language only.
- Adopt team norms for AI disclosure and maintain a simple record of AI prompts and outputs used in manuscript development.

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- Use structured templates (methods checklists, PRISMA for systematic reviews) to anchor reporting in transparent, replicable practice rather than stylistic polish alone.

## **In short, generative AI is a powerful assistive technology that can improve readability and help bridge language barriers.**

However, unchecked reliance carries risks to critical thinking, originality, integrity, and disciplinary judgment. By reaffirming core writing practices structured prewriting, iterative human revision, active recall, and clear disclosure researchers and institutions can harness AI's benefits while preserving the uniquely human skills at the heart of scholarly work.

If you are seeking outside support, professional manuscript [editing services](#) can help refine language while preserving the author's conceptual voice, and targeted workshops or mentoring on scientific writing provide supervised practice that builds durable skills. For example, Enago's [manuscript editing](#) can help clarify attribution and improve phrasing without substituting intellectual content, and its [academic-writing workshops](#) provide hands-on training to strengthen argumentation and methods reporting. Consider these services as complementary tools that support the human skills AI cannot substitute.

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