GenAI From a Literacy Lens: Research on Teaching Texts with Tech

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Abstract

This session will explore current research on the integration of Generative AI in postsecondary reading and writing instruction. We will focus on studies that explore how AI tools are being utilized to support and enhance text-based teaching and learning.

Metaphors for AI

[Within reading and writing contexts], Generative AI is like_____.

Because_____.

Anxieties of AI

- **Constant evolution of anxieties**
  - see US DoE, 2023 for a snapshot and a start
- **Erasure/elimination of expertise**
  - Every reading and writing instructor everywhere 
- **Inaccuracy**
  - "Hallucinations" and inherent biases (Lakhani, 2025; MIT Sloan, 2025; O'Brien, 2023)
  - Non-existent citations/sources
- **Data privacy**
  - (Cornell University, n.d.; De Vynck, 2023; European Commission, 2022)
- **Bias and inequity**
  - US DoE (2023)
- **Erosion of academic integrity**
  - Blurred authorship raises questions about *ownership, originality, and responsibility*
  - Students may not recognize where their ideas end and AI's suggestions begin (Çela, 2024; Johnson & Verdicchio, 2017)

Anxieties of AI, Cont'd

- **Overreliance on AI tools may reduce cognitive engagement**
  - Students risk *passively accepting AI-generated content*, bypassing deep thinking (Floridi et al., 2021; Lin, 2023)
  - Reflective processes like *analysis, synthesis, and evaluation* may be lost (Wecks et al., 2024)
- **Critical thinking development may be stunted**
  - Undergraduates are still forming foundational reasoning skills (Limeri et al., 2020)
  - AI might act as a *shortcut* at a critical developmental stage (Holmes et al., 2017)
- **Cognitive outsourcing vs. cognitive partnership**
  - AI tools can support learning—but only if students *engage critically* with them (Holstein et al., 2019)
  - Without guidance, AI can quietly become the *primary writer*
- **Emotional and ethical tension for educators**
  - How much AI is too much?
  - Can we trust what students submit?
  - Are we assessing *student thought*—or machine-generated polish?


Pause.

Grounding Words

"What Generative AI does is potentially big. Indeed, we would argue it is big on a scale that also marks the printing press and modern institutionalized education as significant waystations. The consequences for schooling could be big too—big bad, big good, or big both, depending on **how we choose to understand it and take it up**" (Kalantzis & Cope, 2025, p. 34; bold added).

Also...

We've both *never* been here before AND been here before (or, at least here-adjacent) in the field of literacy.

As but one example of a "distruptive" technological shift:

NCTE—in 1946--authorized a task force to explore five "current reading problems in high schools and colleges" (Gray, 1948, p. v).

"The changed role of reading in contemporary life resulting from the rapid development during recent years of other agencies of mass communication" (Gray, 1948, p. ix).

Purpose and Context Matters

- Ours is a literacy lens, but the literature primarily distinguishes

- Other arenas related to literacy:
  - Professional and workplace summarizing (i.e., medical discharge documentation) and text-generation
  - Scholarly summarizing (i.e., literature reviewing; peer reviewing) and text-generation

- Our focus: reading and writing *instruction* at the college level


AI and Reading

GenAI Reading Uses or Supports

For instructors:

- Objectives-driven lesson plans and activities
- Selection of reading materials
- Recommendation for discussion questions, text-specific writing prompts, and activities
- Reading guides
- Assessments

For students:

- Individualized comprehension supports like condensing/summarizing, as well as more interactive supports like Q&A, quizzes, and activities
- Engagement strategy recommendations (areas to emphasize, places to annotate, etc.)
- Focus on Specific components of reading and comprehending (i.e., vocabulary, analysis, synthesis)
- Recommendation for related literature

Research on AI in Postsecondary Reading Instruction: Some Noted Patterns

- General patterns in literature
  - Several systematic reviews of literature in and around literacy and/or higher education teaching and learning and/or reading in K-12 and/or AI-literacy (Bannister et al., 2023; Casal-Otero et al., 2023; Law, 2024; Ogunleye et al., 2024; Yang et al., 2025)
    - Not much on postsecondary reading, but some emerging in adult education (Wolters et al., 2024)
  - A mix of scholarship types, with conceptual pieces emphasizing policy, ethics, and concerns as well as lots of conference proceedings
  - A mix of attitudes, but leaning positive according to one review (Law, 2024, p. 5), but largely negative according to one survey of instructors (Ruediger et al., 2024)
  - Much (most?) empirical research is happening beyond the US (see, for example, Law, 2024; see also Bannister, et al., 2023)
    - "East Asia regions […]are most productive" (p. 3)

Research on AI in Postsecondary Reading Instruction: A Summary of Foci

- Research foci:
  - Intelligent tutoring systems or ITSs (e.g., Auto Tutor-ARC, Sabatini et al., 2023)
  - Instructional supports (i.e., automatic scoring of assessments)
  - L2 (additional-language) supports (Wang & Dang, 2024; Xin et al., 2024)
  - Early literacy aids

Research on AI in Postsecondary Reading Instruction: Some Gaps

Needed research in and around reading:

- Perceptions (students and faculty)
- Long-term impact on reading and reading-development
  - Lifespan perspective
- Disciplinary differences in reading supports and usage
- Correlations between prior knowledge and technology exposure and AI-literacy (O'Dea et al., 2024)
  - Thus, access and inclusivity

AI and Writing

Research on AI in Postsecondary Writing Instruction

- Moving past grammar checks
- **Explosive growth of Generative AI tools** (e.g., ChatGPT, Grammarly) in writing classrooms across higher education.
- **Early studies focus on surface-level improvements—**grammar, fluency, organization (Zhang et al., 2024; Cope & Kalantzis, 2024).
- **Limited exploration of cognitive depth—**Few studies address how AI affects students' *critical thinking*, synthesis, and argumentation.
- **Emerging frameworks** suggest AI can be a *learning partner*, but risks of overreliance and passive engagement remain (Lin, 2024; Holstein et al., 2020).
- **Call for empirical studies**: Educators and institutions need data-driven guidance on *how* to integrate AI to support—not replace—student thinking.

Adapting Writing Instruction with Generative AI: Embracing Evolving Best Practices

- **Lin's (2024) Five-Stage Framework** offers a structured approach to integrating AI ethically and intentionally:
  - *Basic editing* (e.g., grammar/spelling)
  - *Structural editing* (e.g., transitions, flow)
  - *Creating derivative content* (e.g., rephrasing ideas)
  - *Generating new content* (e.g., drafting from a prompt)
  - *Providing feedback/evaluation*
- **Use AI as a thinking aid, not a thinking replacement**—the tool should enhance *reflection, revision,* and *idea development*.
- **Critical Practice**: Teach students *when, how, and why* to use AI at each stage—not just what buttons to click.
- **Instructor Role**: Model responsible AI use, emphasize *critical evaluation* of AI output, and build *AI literacy* alongside writing skills.
- **BUT**: AI tools are evolving so rapidly that instructional practices must remain *adaptive, reflective, and student-centered*.
  - What works this semester might be outdated the next.
  - Students need not just skills—but *dispositions* to engage critically with AI content.

Adapting Writing Instruction with Generative AI: Embracing Evolving Best Practices

- **"Writing First, AI Second" Policy**:
  - Encourage students to *draft independently first*.
  - Use AI tools *after* initial thinking and content generation.
  - Promotes ownership, deeper engagement, and original thought.
- **Critical Implementation Practices**:
  - Teach students to interrogate AI output—ask, *Is this accurate? Does it align with my purpose?*
  - Instructors should *model critical AI use* and provide transparent discussions about benefits and limitations.
- **Adaptability is key**: AI tools are evolving so fast that “best practices” must stay flexible.
  - Today’s smart tool could become tomorrow’s crutch.
  - We must teach *mindful, reflective use*, not dependence.


AI and Critical Thinking

Critical Thinking as a Thesis/Core Literacy Connection

- **Critical thinking is foundational to academic literacy**, especially in writing—it enables students to construct arguments, synthesize sources, and reflect meaningfully.
- Writing is the primary space where *critical thought becomes visible*—students move from consuming information to *producing knowledge*.
- **Generative AI tools can disrupt or support this connection**:
  - They **automate lower-order writing tasks** (grammar, structure)—potentially freeing up cognitive space (Sweller, 1988).
  - But they also risk **short-circuiting critical thinking** if students passively accept AI-generated content without reflection (Floridi et al., 2021).
- **AI-generated fluency ≠ student-generated insight**: A well-written paragraph isn't always evidence of critical engagement.
- **Paul & Elder (2006)** and **Facione (1998)** emphasize habits of thought like *clarity, evaluation, inference, logic*—skills that may be bypassed when AI fills in the gaps.

What inspired my study:

As a Large Language Model, I .....

For Reflection

- How can we help students strike a balance between AI support and authentic intellectual effort—so that AI becomes a tool for deepening, not replacing, their cognitive engagement?

Dissertation Study - Sig and the Problem

Problem Statement

- Tools like ChatGPT and Grammarly are now widely used by undergrads for writing tasks (Alajmi et al., 2020; Sun, 2024; Shahzad et al., 2024).
- They're great at fixing grammar and structure—but their impact on *critical thinking* is still unclear (Zhang et al., 2024; Lin, 2023).
- Critical thinking—skills like evaluation, analysis, and inference—is essential for good writing and academic growth (Paul & Elder, 2010; Brookfield, 2011).
- Overreliance on AI may lead to cognitive disengagement and passive acceptance of generated content (Floridi et al., 2021; Cummings, 2024).
- Existing studies mostly focus on *how to use* AI—not on what it does to students' *thinking* while writing (Yan, 2023).

Significance

- Critical thinking is a cornerstone of higher education and essential for constructing arguments, synthesizing sources, and engaging deeply with course content (Facione, 1998; Pithers & Soden, 2000).
- Despite AI being marketed as a tool that can enhance writing, its cognitive impact—especially on undergrads—is under-researched (Wecks et al., 2024; Ruiz-Rojas et al., 2024).
- Undergrads are still developing foundational reasoning and analytical skills—introducing AI now may either help or hinder this process (Limeri et al., 2020; Kuhn, 2019).
- This study provides empirical evidence on whether AI tools support or suppress higher-order thinking in student writing (Sweller, 1988; Baron, 2024).
- Results can guide ethical integration of AI in pedagogy—supporting students without replacing their intellectual labor.

Dissertation Study – An Overview

- **Focus**: How Generative AI tools (e.g., ChatGPT, Grammarly) affect the *quality of critical thinking* in undergraduate students' writing.
- **Research Question**: How does the use of Generative AI impact the quality of critical thinking exhibited in undergraduate students' writing, particularly in terms of interpretation, analysis, evaluation, inference, and explanation?

- **Frameworks Used**:
  - **Paul & Elder's Critical Thinking Model**: clarity, depth, logic, relevance.
  - **Cognitive Load Theory** (Sweller): AI might reduce surface-level load, freeing up mental space—or cause *cognitive disengagement*.
  - **Human-AI Hybrid Adaptivity Framework** (Holstein et al.): AI as a thinking partner vs. passive tool.
- **Method**:
  - Quasi-experimental design with control (no AI) and experimental (AI-supported) groups.
  - Pre- and posttest writing samples scored using the *Holistic Critical Thinking Scoring Rubric* (Facione & Facione, 1994).

Lin’s (2024) Five-Stage Framework for AI-Assisted Writing

- **Level 1: Basic Editing –** AI assists with grammar, spelling, and clarity. *(Prompt: “Check the spelling and grammar in this paragraph, and suggest synonyms for any repetitive words.”)*
- **Level 2: Structural Editing –** AI helps improve coherence and sentence structure. *(Prompt: “Paraphrase this lengthy sentence to improve its clarity and flow, and translate it to French.”)*
- **Level 3: Creating Derivative Content –** AI is used for summarization and paraphrasing. *(Prompt: “Summarize this document and create a short, catchy title for a journal submission.”)*
- **Level 4: Generating New Content –** AI supports brainstorming and expanding ideas. *(Prompt: “Continue the text to explain the key question being addressed. Show why it is important, drawing parallels or analogies where you see fit.”)*
- **Level 5: Evaluation and Feedback –** AI critiques argumentation, logic, and clarity. *(Prompt: “Review this introduction and highlight any logical gaps or areas that need further development.”)*


Looking Ahead

Needed Research

- **Beyond grammar and fluency**: Most current studies focus on *surface-level writing improvements*—we need research on *deep cognitive impacts*, especially in writing.
- **Longitudinal effects**: How does sustained AI use influence *critical thinking development* over time, especially in undergraduates?
- **Disciplinary differences**: How does AI impact writing in *different academic contexts* (e.g., humanities vs. STEM)?
- **Student-AI interaction patterns**:
  - *How* do students actually use AI in real writing situations?
  - What habits lead to deeper thinking vs. passive content acceptance?
- **Instructional design & pedagogy**:
  - What models best support *critical engagement* with AI tools?
  - How can we scaffold *AI literacy* in writing instruction?
  - How are instructors using and not using these tools for curriculum design and instruction?
- **Ethics & equity**:
  - Who has access to advanced AI tools—and who doesn't?
  - How do we support diverse learners in navigating AI responsibly?

Practical "Guidance"

- "Best" practice is both a false notion and a moving target, though we can approximate
- Also, remember those grounding words:

  "What Generative AI does is potentially big. Indeed, we would argue it is big on a scale that also marks the printing press and modern institutionalized education as significant waystations. The consequences for schooling could be big too—big bad, big good, or big both, depending on **how we choose to understand it and take it up**" (Kalantzis & Cope, 2025, p. 34; bold added).

Questions or Comments

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AI Summarization Tools

Tools:

ChatGPT, of course, but also…

AI Summarizer: https://www.summarizer.org/

QuillBot Summarizer: https://quillbot.com/summarize

SciSummary: https://scisummary.com/

TLDR This: https://www.tldrthis.com/

Also, AVID's website: https://avidopenaccess.org/resource/ai-and-reading/#1709751897775-5985895a-b93e