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Research Article

The AI Reading Conundrum and Its Implications for Pedagogy

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Introduction

Reading in many postsecondary writing classrooms is structured by a similar model: a list of readings is assigned for each class; learners should complete the readings prior to class; and readings are included in class discussions and activities, often setting a foundation for the work/assessments of the course. In a pedagogical environment that is increasingly influenced by artificial intelligence (AI), this model for integrating reading is insufficient. Even before AI tools were widely accessible, learners displayed fragmented reading practices and difficulty incorporating research into writing practices (Ihara & Del Principe, 2016). The influence of AI summarizers, such as ChatPDF, Consensus, Adobe's AI Assistant, and PopAI (to name a few), exacerbates these problems by enabling learners to circumvent reading. However, learners need to gain a deep comprehension of their readings and develop skills for applying them to their writing. Simply put, pedagogies must account for AI in the classroom by understanding 1) how AI summarizers influence the way learners process information and apply it to their writing practices and 2) how to account for this influence in writing instruction.

This article will analyze insights from qualitative research conducted at the University of Toronto on reading and the role that AI summarizers play in learner approaches to writing. The analysis will begin by describing conversations with participants ($N = 35$) on their AI summarizer use. It will then detail how the study was adapted to explore reading with AI tools and its connection to writing in an AI-mediated environment. It will end by discussing potential implications for reading pedagogies. While these implications will focus on the postsecondary context of the study, they apply to various writing environments.

Project Context

This project began as an investigation into how metacognition influences the way learners use AI tools in their writing. The guiding questions included the following:

1. How do former first-year writing learners think with and about AI tools as part of their writing?
2. What writing skills do learners need to effectively integrate AI tools?

The goal was to understand how former first-year writing students used AI tools and how first-year writing influenced their use of these tools (if at all). As research progressed, a third dimension emerged during data collection and analysis that warranted further investigation: using AI summarizers to support reading and research. This dimension led to a third question: How do AI summarizers influence the way learners write in a pedagogical environment influenced by AI tools?

In some ways, AI summarizers can be remarkable tools to support learner research and writing. They can, hypothetically, clarify jargon, simplify complex readings to make them accessible, and help learners make connections. However, the speed, ease of access, and the perceived comprehensiveness of AI summaries can be problematic. A chief concern is that summarizers could provide learners with only a fragmented understanding of how what they read applies to what they write.

AI Summary Tools

The effect of AI on reading practices goes beyond simple summaries. Many AI tools are framed as research assistants, not reading assistants. They are often marketed as mechanisms that help people move from reading to knowledge-making. For example, *Scite* creates a literature review by scanning articles. It can provide users with context for information cited and classify different sources as coinciding or contrasting. The "context" it adds provides a small snapshot of this larger context, but an undiscerning user may not recognize this as a challenge. *NotebookLM* (a Google product) can summarize and synthesize source information, making connections across knowledge-making modes (video, audio, text). The results are broad overviews, but they can be turned into audio features people can listen to on the move. Adobe's AI assistant facilitates interactions with documents, asks questions, and uses the chatbot to make connections with PDFs. For example, a user could ask questions about document themes or ask the assistant for related resources. None of these queries requires that someone read the text.

What this means is that many AI tools are designed to expedite reading or circumvent it altogether, thereby shifting how people interact with texts. These features are not necessarily impediments. For example, they can make connections a user may not have conceptualized, helping learners make their own syntheses and additional connections. But it is equally important to understand that reading practices are shifting and to account for the implications of this shift in classrooms.

Literature Review

Reading has not been a prominent part of the discussion around AI's influence on classroom environments where writing is a primary means of evaluation. Most experiential accounts of AI's capacity have offered a useful starting point for understanding writing with large language models (e.g., Fyfe, 2022; Lingard, 2023). In writing studies, recent publications have focused on discussions of writing (e.g., Aguilar, 2024; Graham, 2023; Knowles, 2024) as well as writing pedagogy (Dobrin, 2023) and its implications (Chhem and Hibbert, forthcoming; Mollick and Mollick, 2023). Institutional statements from the Association for Writing across the Curriculum (2023) and the Modern Language Association/Conference on College Composition and Communication (2023) have prioritized writing, learning, and academic integrity. Reading has been a secondary—if not absent—part of AI conversations.

Connecting Reading and Writing Practices

The connection between reading and writing practices has long been known (e.g., Adler-Kassner & Estrem, 2007; Sweeney & McBride, 2015). Graham et al. (2018) found that a balance between teaching reading and writing practices can strengthen both dimensions of learners' development. Giordano et al. (2023) articulated the value of this intersection, emphasizing the rhetorical connections that are made between what people read, how they

read, and how that applies to their writing. Learner-facing texts (e.g., Bunn, 2011; Downs, 2010) have stressed rhetorical reading practices. Being able to scrutinize, think with, and consider the structure of the texts they read positions learners to understand the concepts that underpin these texts and transfer this knowledge to new writing contexts.

Deep reading is often described as a means for learners to make connections between reading and writing. Sullivan (2019) expressed deep reading as a primary tool for connecting ideas across texts and contexts. Carillo (2017a) highlighted the "mindful reading" skills learners can develop with deep reading. Learners can, in turn, apply these skills across disciplines to support further learning and to make interdisciplinary connections. Tinberg and Davis (2023) explained that "what is lacking in college writing classes is not a theory of mind generally, but a way of thinking about reading that would serve a theory of writing" (p. 225). Deep reading can provide the habits of mind that learners need to make connections with and apply concepts.

Connecting Reading, Writing, and Critical Thinking

Critical thinking (CT) involves interacting and applying materials to build knowledge. Scriven and Paul (1987, as cited in The Foundation for Critical Thinking, n.d.) offered a useful definition of CT, calling it a "process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action" (Critical Thinking as Defined section, para. 2). This overview has offered a starting point for conceptualizing CT in practice. Ennis (2018) noted connecting CT and subject-matter instruction proved useful. Ennis also offered a list of dispositions and abilities critical thinkers apply, including using credible sources and observations, assessing their credibility, and applying sources and observations appropriately within the demands of the context. Rademaekers and Detweiler (2019) problematized Ennis's abilities/dispositions, noting that it was important to consider how these elements appear in writing. They found that materials "may be a more reliable marker for critical thinking expectations than disciplines themselves since materials may cut across disciplines" (p. 16). Yancey (2015) identified materials and evidence as important dimensions of CT that shift across disciplines (e.g., textual and graphic information for engineers, historical artifacts in history).

This article uses connections between materials as a lens to analyze the intersection of reading, writing, and CT practices. Learners who demonstrate critical thinking work in relation to the materials they use for knowledge making. Nicholes and Lukowski (2021) emphasized the value faculty place on learners evaluating and using credible sources. Cheslow et al. (2023) also emphasized a relational dimension of CT by highlighting the role of self-efficacy: "critical thought . . . occurs when the writer sees themself in relation to the writing and thinking of others" (p. 2). There is a connection between how thinkers read source materials, engage with their content, and apply them to their writing. This is evident in Jamieson and Howard's (2013) discussion of reading practices with respect to how making connections between texts enhanced CT.

AI Summaries

Research on AI summaries has emphasized accuracy and reducing hallucinations. Nan et al. (2021) proposed a filtering approach to training data that reduces hallucinations. Aharoni et al. (2023) revealed that multilingual text summarizers were faithful to their source text only

52% of the time, and this percentage improved only with human intervention. Cao et al. (2022) found that while 30% of summaries they generated contained hallucinated content, half of the hallucinations contained knowledge that could be verified. This research poses a challenge for instructors: how might learners develop skills to account for these inaccuracies and know when to verify content?

Some discussions have considered AI summaries and reading practices. Dang et al. (2022) proposed ways that summaries could be used to support writing practices. Their participants saw AI as another perspective rather than a replacement for reading. They noted that, in this way, AI could be used to understand long texts, recall content to facilitate revisions, and promote metacognition. Watkins's (2024) students noted similar uses of AI summaries, including simplifying dense passages and expediting understanding. However, Watkins questioned students' propensity for offloading reading to AI summarizers, noting the risk of diminished analytical and argumentative abilities.

Diminished Reading Skills

Many postsecondary contexts emphasize writing rather than the intersection of reading and writing practices. Carillo (2017b) explained that writing becomes privileged over reading in post-secondary instruction. The risk, according to Carillo, is that learners might accept what they read at face value since they lack skills to connect with knowledge-making materials. Similarly, Ihara and Del Principe (2016) found that learners develop a fragmented understanding of ideas because they lack critical reading skills. This fragmentation was present in Jamieson and Howard's (2013) study, which showed that most citations learners included in their papers derived from the first two pages of a source. Tinberg and Davis (2023) highlighted a resurgence in research on postsecondary reading pedagogies due in part to a "a sense of literacy crisis" (p. 223). Similarly, Baron and Mangen's (2021) exploratory survey of reading practices found that long-form reading—the kind that is conducive to developing deep reading skills—has diminished.

Wider literacy research has also highlighted declining reading skills and the decreased amount of time learners spend reading. Desa et al. (2020) showed that required reading has decreased; learners do not see the value of reading despite the expectation to read to build knowledge in their disciplines. Bean et al. (2018) explained that while reading must be learned to make "intertextual connections across related disciplines" (p. 92), learners are typically underprepared to do this, and faculty are often not equipped to support learners in the way they require (Bean et al., 2018; Desa et al., 2020). Baker et al. (2019) highlighted the lack of research focused on reading for academic success. Their review found a gap "in case studies of students' situated reading practices and critical engagement with the privileged and expected ways of reading within disciplines" (p. 152). If learners are not taught to read with the lenses required for their disciplines, they are unable to understand disciplinary epistemologies. Reading is essential to engaging with disciplinary pedagogies and epistemologies, but it is often invisible.

AI-Mediated Reading Practices

These challenges could be exacerbated with AI. Mollick's (2024) *Co-Intelligence* crystallizes potential tensions that can emerge in an environment where already diminished reading skills intersect with AI summaries. Mollick described his process of using an AI summarizer to review technical literature: "the AI exceeded my capabilities in summarizing, while I

exceeded it in understanding . . . I would ask the AI to summarize a paper to see if I understood it in the right way, knowing full well that the AI could get me only partway there. And then I would use AI summaries and notes [for reference]" (p. 138). Mollick is a seasoned academic. He recognizes where AI is useful to support or confirm his understanding and where summary is insufficient. He knows where his insight is needed.

What is less clear is whether learners would recognize the interrelationship between human knowledge and AI summaries. While this gap in knowledge likely exists across many grade and age levels, I will limit my focus to undergraduate learners. Even in these contexts, few learners would have the level of experience and expertise necessary to recognize how far AI could get them. Mollick (2024) was using AI as a triangulation tool. Would learners do this? How can they do this well? Will they triangulate using AI summaries, or will they automate or offload the reading process and all the conceptual connections that come with it?

These questions lurked in the background as I worked with my participants. They helped me refine my methodological approach. They also allowed me to calibrate the analytical lens to examine the connection between AI summarizers, learners' reading practices, and how learners apply that reading to writing.

Methodology

This project used Constructivist Grounded Theory (CGT). In CGT, data is gathered from collaboration between the researcher and participants (Rieger, 2019). It is an iterative process involving successive stages of data collection and analysis (Charmaz, 2014). As one round of data collection is complete, data is coded and analyzed to inform future rounds of data collection and analysis (Breckenridge et al., 2012). This iterative coding process allows researchers to respond to emerging patterns in the data (Charmaz, 2014). Data collection responds to participants and allows researchers to adapt the study to explore salient research themes more deeply.

This project used three qualitative methods for data collection: semi-structured interviews, focus groups, and a think-aloud protocol. The common thread between the methods is their focus on gaining a deeper understanding of participant perspectives. This understanding enables several levels of co-construction: between researcher and participants (interviews), between participants (focus group), and between researcher and participants again (think-aloud protocol).

Overview of Data Collection

After approval from our university's research ethics board was obtained, recruitment began. Recruitment occurred in two rounds, one in September 2023 and one in January 2024. Participants were students who had completed my first-year writing class in the past 18 months. The university's first-year writing class began in 2020 and has slowly grown. The course is offered to students across the university: it is a mandatory course for ten majors, with new majors onboarded each year. The university has a large international student population. Its campus is located in a multicultural urban area, and the student population reflects this diversity, especially in the first-year writing class because it draws from a large segment of majors. As such, study participants came from a range of cultural, intellectual, and disciplinary backgrounds.

The project included 35 participants, between September 2023 and February 2024. Twenty-three participants were in the first cohort. After the first round of coding and analysis, a second call for participants was released. This second cohort included 12 participants. To ensure anonymity, pseudonyms will be used to discuss participants.

Iterative data collection and analysis also included mechanisms to ensure informed participant consent. The first layer of consent was a letter sent to each participant before the interview, elaborating how their data would be used, how they could access potential publications, and how they could exercise their right to withdraw from the project. Before each interview and each focus group, I explained the consent form, added details about the project, and asked participants whether they wished to continue. I also specified how participants could withdraw their data retrospectively and provided information for an alternate contact if they were not comfortable emailing me to withdraw. At the end of the data collection, participants were offered an opportunity to review and comment upon drafts before they were submitted. This aspect of the project saw little uptake, though three participants offered feedback on this paper before submission.

With these layers of consent, participants could make decisions about their involvement at each stage of the research process. These layers also gave them an opportunity to learn more about how data was analyzed and to determine their participation accordingly. Finally, the layers allowed for both consent at the beginning of the project and ongoing verbal consent throughout.

Semi-Structured Interview

Each cohort began with individual interviews. All 35 participants sat for a one-hour, semi-structured interview. Charmaz (2014) explained that, in CGT, interviews are a valuable tool to collect and analyze participant experiences. Interviews provided an initial understanding of how learners perceived AI tools for writing, and they offered a useful space to gauge learners' reading practices in relation to their writing and use of AI tools. These participant narratives then informed the focus group design.

Focus Group

Thirty-three participants took part in a two-hour focus group following the interviews. Participants were divided into seven focus groups (approximately 4–5 individuals per group). In the first hour, participants were given a draft modeled after the genre analysis assignment from our first-year writing class. Participants received one of two possible drafts. One was generated using ChatGPT 3.5 since that was the version freely available to all participants. The other was a draft that I wrote on the same topic. Two groups knew they had the AI-generated draft, and two knew they had the human-generated draft. Three groups did not know which draft they received; among them, one had the AI draft and two had the human-generated draft.

Dividing the drafts allowed me to consider whether knowing a draft's origin would affect how participants approached revisions. Participants were also provided the assignment sheet and rubric. The drafts' biggest issues were conceptual; the genres being analyzed did not align with the paper's argument, and source engagements were surface-level. These are all issues that learners would have encountered in our first-year writing class, so they had prior experience that could inform their participation.

Participants were tasked with providing peer feedback during the first hour. During the second hour, participants were asked to develop a step-by-step revision plan that they would follow if they were required to revise the draft themselves. These documents—the revision plan and peer feedback—offered a way to see participants thinking in action. During data analysis, they were cross-referenced with the interview transcripts.

The focus groups showed how learners put their reading and writing skills into practice. While the interviews offered a useful starting point to understand these aspects of their learning, having learners work with a draft offered a chance to analyze how they interacted with materials (e.g., drafts, secondary source materials, rubrics). The focus groups demonstrated whether learners scrutinized the concepts and sources used in the draft. They also allowed the converse: whether learners would simply work with the ideas and sources presented, making structural changes with little attention paid to concepts.

Think-Aloud and Managing Bias

Each participant had a think-aloud session during the focus group. Think-aloud conversations gave participants space to describe their revision plan. Think-aloud protocols are useful to capture participant thinking in the moment (Rowell, 2022) and were an additional measure through which bias was managed. Think-alouds, according to Rowell (2022), allow participants to control their narrative and explain the logic behind their decisions. This way their voice was included in data analysis.

It is important to acknowledge that bias is something managed rather than something to be eliminated. Constructivist Grounded Theory data and analysis is subjective (Rieger, 2019). Charmaz (2014) noted that CGT data is constructed, and that the researcher's positionality is important to acknowledge. The goal is not to eliminate researcher influence. Rather, CGT researchers should detail how their positionality may affect participant interactions.

In this project, a few things influenced data construction. For one, I was still an instructor, and there was potential for a power imbalance between my former learners and me. We were also talking about learners' AI usage at a time when it was unclear whether it would be an integrity issue at the university. It was reasonable for participants to worry that I could report their usage even though that was not my intention. In this sense, there was potential for participants to tell me what they thought I wanted to hear (e.g., that they didn't use AI tools to complete schoolwork) rather than answer freely.

A few measures were implemented to mitigate concerns around my influence and position in the project. The letter of information and consent clarified that I was not reporting to anyone. I also spent time emailing participants about the project in the same tone I use to build rapport in class. We already had a positive working relationship, and this messaging allowed me to frame the research as a chance to continue working together and having discussions about writing. During the interviews and focus groups, I built questions around concepts/approaches/assignments they would be familiar with from class, so participants would build on what they already knew. Though none of these measures was designed to eliminate potential bias, they helped establish common ground.

Adapting Study Parameters

The iterative and adaptive approach that CGT offers (Charmaz, 2014) enabled me to adjust the study in response to emerging data and gain a deeper understanding of how learners

were using AI tools to read in academic settings. For example, the initial study design primarily focused on learner writing; reading only emerged as a prominent discussion point after I began the first interviews. As I coded the initial transcripts, it became apparent that tension existed around AI PDF summarizers. On one hand, there was potential for AI summarizers to support writing and research. On the other hand, summarizers could prevent writers from gaining a deep understanding of scholarly conversations and from making connections.

In the first round of data collection, I had deep discussions with a few participants around how they used AI summarizers to support their writing and research. However, it was important to understand if these conversations were simply outliers or if many participants were using AI summarizers. If they were (as turned out to be the case), it was necessary to understand what role summarizers played in their writing. Therefore, for the second round of data collection, I added questions targeting AI summarizers, how participants used summaries to learn, how they used them to support research (if at all), and what role AI summaries played in learner writing.

Recent literature has emphasized the connection between reading and writing as an important threshold idea for learners to understand. Giordano et al. (2023) and Sullivan (2019) have underscored the importance of learners recognizing that reading and writing are interconnected processes. Being able to read, understand concepts in readings, and make connections between readings are important skills that writers use to develop meaning. In this sense, adding a layer to data collection in the second iteration was not a huge departure. The central research question around how learners think with and about AI tools for their writing remained. Now it had an added layer that explored how learners used AI summarizers as part of their reading and writing processes.

Data Analysis

Analysis of data was ongoing throughout its collection. After the first cohort, transcripts and revision plans were analyzed through open coding. This line-by-line analysis examines the data in as many ways as possible (Charmaz, 2014). Simultaneously, I developed research memos on emergent ideas. The memos mitigate the uncertainty that comes with having so many codes at once, prompting researchers to "stop coding and capture, in the moment, their conceptual ideas about the codes that they are finding" (Holton, 2010, para 7). From here, categories were developed to accommodate individual codes and emergent patterns. These categories helped connect micro-moments in the data to macro-level concepts.

The approach resonated with Qureshi & Ünlü's (2020) sequence of moving from code to concept to category before articulating a theme. Data analysis builds out from examining small details to considering larger connections and implications. In this sense, data analysis was a linear process. But data collection was also cyclical. The first round of data analysis facilitated the next round of data collection and analysis. The second round of data collection was more focused because of the initial data collection. For example, the second cohort was asked more extensively about reading than the first cohort was. Because there were more specific and targeted questions around reading with the second cohort, the second round of analysis could explore reading and AI summarizers more intently. This pattern of data collection also helped to determine key informants, the participants in cohort one whose responses prompted me to consider more closely reading in the second round of data collection. Key informants also included participants from cohort two who used AI

summarizers at various points in their learning (i.e., for class, during research, when writing). In the following results and discussion, these participants' various approaches to using AI summarizers will be detailed.

Results and Analysis

Four uses of AI summaries stood out during data analysis. The first was for searching keywords and facilitating research. The second was to expedite research. The third was to simplify texts and clarify jargon. The fourth was to save time. These uses influenced participants' reading and the way they applied their reading to writing. Each of these uses is explained in its own subsection below. Each subsection is followed by an analysis of the implications each use has for reading practices.

It was clear that each use has a risk. One risk is that learners who depend on AI summary may not find or join the most relevant scholarly conversations. Another risk is that AI summaries could hinder how learners relate to materials they encounter as they connect their reading and writing practices. A third risk is that learners who use AI summaries may not even recognize that they are missing important information. Without proper training or judicious use of AI summary, learners may not be able to fully participate in the epistemologies of their disciplines.

Each use, however, also has potential to enhance learning if learners have proper training. AI summaries could offer a way to determine the most relevant sources for research. They could also make texts more accessible. They can even facilitate rhetorical reading practices. When used as a triangulation tool, AI summaries can create space and opportunities for learners to engage more deeply with their readings, provided they have read the text in its entirety.

A breakdown of the tension between risk and learning opportunity is included in the analysis subsections below. Afterward, the discussion will consider what can be done pedagogically to ensure that the potential for AI summaries supersedes the pitfalls. It offers a starting point for future research around reading in AI-mediated pedagogical landscapes.

AI Summaries, Key Words, and Research

Many participants who used AI summaries employed them to find the conversations around their research topic or to encapsulate the ideas in the research. For Alya, AI was a proxy for research: "it gives me a summary according to kind of like my lens of what I'm looking for, and then I would just use that sometimes. So sometimes I won't even look at the source myself." However, for many learners, this synthesis was a way to start understanding ideas from research. For learners such as Danny, Valerie, Ria, David, and Lou, this synopsis helped triangulate their understanding of the text with another iteration of its ideas. It was a way for them to verify and modify their understanding of a concept. David described how it helped him find conversations on the topic and "get a general idea of where I could lean into" during further research. Ria made a point to always return to the original sources to check her knowledge again before using the source in a paper, but she was in the minority who mentioned doing this.

During the focus groups, these learners stressed the need to return to the original sources the draft used. This way they could verify that the content matched the argument. So, while there are moments where AI tools can hinder metacognitive thinking, bringing metacognitive thinking to AI tools can offer writers another perspective through which they

can understand the ideas presented. They must ensure that the information in the AI synopsis is valid by reading the source themselves and comparing the synopsis with their understanding. If they do, they could develop a deeper or at least more confident understanding of the concepts.

Danny offered a compelling use of AI tools for research. The first-year writing course at my institution culminates with asking learners to develop a theory of writing. My assignment required them to engage with literature on writing transfer. Danny used AI tools to summarize each research article in order to scan it for key words related to our transfer discussion. They would mine the summaries for the articles that emphasized these keywords. This strategy, combined with their own unassisted scan of the resources, allowed them to prioritize the articles with the most prominent transfer discussions. The strategy saved Danny time in reading and, if deployed well, could allow them to connect with the most relevant conversations, map our classroom context into those conversations, and prioritize the readings that best fit the assignment demands.

Other learners had similar approaches to using summarizers to narrow the scope of their research. Valerie found summaries useful for finding out whether a source spoke to a specific idea she was working with: "I found it easier to summarize the paper so I could find out if what I needed was in there and then, if what I was looking for was in the summary, I would go back into the paper and search keywords. I would search the words and see if what came up was what I needed." Jeremy described AI summarizers as a complement to his "own ability to skim, to pick and choose whether [to] like dive into deep of this rabbit hole for [the] assignment." AI summaries seemed to streamline some of the research process for learners, helping them assess whether a resource would contribute to their work.

Analysis

A tension exists when these AI summaries are considered pedagogically. In one sense, there is potential for them as a triangulation tool. When used to complement what a learner knows from scanning a resource, AI summaries offer another data point to support that assessment. Learners and researchers have long used their own scans, abstracts, and key words as reference points to determine whether a resource warrants more reading. Now, an AI summary could offer another (more extensive) reference point to help learners decide which resources warrant closer attention.

But there is also a risk that AI summaries miss important dimensions of the research conversation with which a resource engages. Because AI tools tend to scan and articulate the broad, surface-level dimensions of a text, they miss nuances. For example, if Danny were scanning only for whether an article explicitly discussed transfer or how prominently transfer was discussed, there would be potential for a useful resource on writing or skill transfer to be overlooked because the language it used or the approach it employed (e.g., if the text used metaphors to describe concepts) did not align with Danny's keywords or method.

Similarly, Valerie's approach could be useful in situations where something very specific is needed. But examining a summary to see whether an article confirms what one is trying to say can be a slippery slope. There is no guarantee that what a person is thinking aligns with the wider research conversation. It may be possible to find a resource that is relevant to the line of thinking, but it may not get to the heart of the relevant discussions. This approach could also undermine the process of discovery that occurs in research, and

learners could miss opportunities to make connections between materials that, on the surface, do not seem related but that the learner could connect through their own knowledge-making processes.

Summaries to Circumvent Research

It is noteworthy that research, particularly engaging with sources, was the area that required the most follow-up to understand how participants were using AI tools to support their reading. Even the most insightful uses of AI tools required significant probing to determine whether participants read the material and understood the concepts they were putting into their own work.

It seemed that learners who used an AI summary for research walked a line between it triangulating and overriding their thinking. The latter became prevalent at a couple of junctures. For example, two participants used AI summarizers as a shortcut for doing and implementing research. Alya and Zina used ChatGPT to discover sources and then used a summarizer for those sources. They also described using AI to find texts with ideas that supported their own ideas. Alya explained that, with the right prompting, AI tools could "collect actual real sources from all sources of the web." She would look into the sources to verify if they were real, but this was the extent of source verification. Her strategy assumed that AI searches and summaries captured the academic conversation. Equally important was that she was not thinking *with* the ideas in the articles to develop her own contributions. She undercut the epistemological process that comes with researching for writing projects. The tool became a shortcut for research rather than a tool to find sources and work with them.

The following interaction with Alya highlights the moments of doubt that existed throughout these conversations:

> *Alya*: I think [ChatGPT] draws on research well.
> *Eaton*: Really?
> *Alya*: Well. I know there was an issue sometimes with ChatGPT giving you fake sources. I've experienced it where it gives me fake sources but says it's real. But then, if you just prompt it properly, it can collect actual real sources from all the sources of the web, and then you can go and follow up on the sources yourself.
> *Eaton*: Okay, but what about the flimflam that exists? Working with sources is a very particular thing, and it's designed not to just be like "oh I need a source here." It's designed to support learner thinking. Some would argue that by giving you the sources it's doing the work for you. How would you respond to that?
> *Alya*: I don't think it's really doing the work for you, because you still have to go to the sources and filter it out.
> *Eaton*: Okay. I'm just trying to clarify the process. It's like it might help you generate sources. It might link you to a possibility for a soured that works, and then it's up to you to go through the source and apply it to whatever you're writing. Am I correct in that, or am I missing a step?
> *Alya*: you're correct in that . . . sometimes, you don't even have to look at the source . . .

She then proceeded to describe how it would get a summary that fit her lens.

Analysis

Though this was the most overt example of AI being used as a proxy for research, it was not an isolated part of the research results. There seemed to be a fine line between using an AI tool intuitively, such as Danny's keyword search to prioritize which sources to read, and taking it for granted at the expense of knowing the material. On one hand, using AI for a keyword search could lead to the most relevant resources and more efficient research. On the other hand, it could lead learners down Alya's pathway, where they consider only a fraction of the conversation (i.e., open access sources on the web). AI becomes a shortcut and proxy for learning.

This precarity suggests a tenuous metacognitive relationship between AI and reading. While AI tools could enhance research and offer learners' pathways into thinking more deeply about the relationships between sources, the summaries that make this possible come with a high risk that learners miss important learning opportunities.

Cutting Through Jargon with AI Summaries

A third use of AI summaries was to simplify reading material. Manny, for example, explained how he had difficulties understanding his readings and research articles: "It's not even speaking English to me, you know. I can't even understand it. So I use an AI summary to help. That's what I would do. Like copy and pasting the difficult part into ChatGPT, and [then] get it to summarize or get the main points or explain like I'm in high school." Leo echoed this idea: "Sometimes the text dates back from a long time ago in the field. You won't be able to understand it in contemporary days. Right? So obviously there, you know, like words that you won't be able to understand quickly [can be simplified or modernized through a summary]."

Others used summaries to simplify jargon and expand the conversation around that jargon. Ria, for example, noted, "sometimes I will have problems with the readings, or the prompt that it's given, or limited knowledge about the reading that is given. I might use AI to get external sources to read and expand on the topic to understand more." Another participant, Adil, used a similar approach, asking AI to simplify the text: "I can ask a question based on the topic that I'm given. Then, it's gonna give me some prompts. And it's also gonna tell me the pages of those prompts I can read." Adil's rhetorical questioning allows him to cut through jargon to formulate a pseudo dialogue with the AI tool. From this dialogue, Adil could apply context-specific questions to the ideas he is reading.

Analysis

In these situations, AI can offer a way to simplify a text. At times, jargon or technical information can form a barrier to developing more nuanced conceptual knowledge; learners cannot apply an idea that they do not understand. This use of AI summaries could, conceivably, be a strategy to mitigate the fragmented conceptual knowledge that Ihara and Del Principe (2016) found. By making scholarly texts more accessible, AI summaries could allow learners to formulate connections between ideas that might otherwise be obscured by a fragmented understanding. Moreover, the processes Ria and Adil described model a form of rhetorical reading. AI tools can offer a rhetorical space for learners to cut through jargon, ask questions of the summary and the article (combined), and begin forming connections

with the texts they read. It is important in this scenario that the summaries are not the only means of procuring information, but it is conceivable that this is another triangulation strategy wherein learners can connect their own reading with both the AI summary and the dialogue they have with AI tools about the text. In doing so, they may formulate useful connections that they can apply to their own writing.

Conversely, it's possible to question whether simplifying jargon with summary really is useful. It is easy to imagine a scenario where the summary simplifies a text, but learners do read the full text. There is also research indicating that summaries have inaccuracies and hallucinate (Aharoni et al., 2023; Cao et al., 2022). Some concepts are simply difficult to grasp while nuances of others are difficult to capture without prior knowledge. What skills and knowledge bases do learners possess to evaluate whether a complex idea has been accurately summarized? Simply going on what "sounds right" will not likely lead to the deep understanding that learners must develop to apply concepts in their writing.

The AI Summary Time Saver

The most cited use of AI summarizers was to save time. Many participants shared versions of how they would employ them to conserve time on assignments, research, or class readings. My conversation with Adil captured the general flavor of these conversations well: a bit of oversimplification, a bit of confusion on my part, a bit more probing, added confusion, and a common thread that the summary is a useful shortcut but may accomplish much more.

> *Eaton*: What is the balance for you between reading the article and making sure you understand that drawing on the summary . . . there's a fine line that you play. What's the balance between making sure you save time and still go in depth to understand the content. Where does that summary factor into that?
> *Adil*: For example, in class, you gave us a lot of source material, right? And we had to read that source material, and we had to connect it to our writing. So now, if I were to like, just read all of that, it's gonna take me a lot a lot of time, and, you probably know by now a lot of the first years in first semester especially. They don't read from the things that you gave them in class right? So when you, when you put your PDF document into like one of these, it gives you a summary of the whole PDF in one go at first. So you will basically know what's going on like, if let's say it's a story, you will know what's happening like, even if you were to go in the middle like you will know what's happening just by reading that summary.
> *Eaton*: How do we make sure that a writer is getting the whole context and tapping into the full conversation that surrounds that reading?
> *Adil*: If I were to put a hundred page PDF file into an AI and I have no idea what what it is [about]. I would read that summary, and then I would start asking questions based on that summary and the topic that I'm like trying to write about. And then it's it. It's gonna be a back-and-forth conversation again where I would, I would ask more questions, and then it will give me a prompt based on that.
> *Eaton*: Right . . . so your vetting process there is almost like you get the full summary, and then you break it down into the parts that you require the most.
> *Adil*: Yeah, exactly. Right.

Analysis

The notion that the AI summary saves time because it circumvents reading looms large here. The kind of mindful reading practices espoused by Carillo (2017a) do not have space to flourish in an environment where the overarching ethos is that reading prescribed texts will take a lot of time (use a summary instead!). The idea that an AI summary helps learners probe their research topic undermines the purpose of reading the text in the first place. In this scenario, the text's content is detached from its context and from the wider conversations that it joins. Rather than reading being an epistemological tool in which connections with other forms of knowledge are made, it serves the narrow purpose of completing a particular assignment or task.

A glass half-full interpretation of this conversation could argue that the process Adil described has promise as a rhetorical reading exercise. This is true to a degree. There are possibilities where AI tools can simulate and stimulate a conversation around a particular text. They could, with the right prompting and the right persistence, help learners consider dimensions of a reading that they had not considered. This approach could open pathways to meaning-making not hitherto considered.

But only with the right motivation. And only if readers have read the text in its entirety. If the impetus for using AI summaries is to save time and avoid reading, then it is unlikely that learners can maximize the summaries' rhetorical potential. Without a wider knowledge of the text, in conversation with other texts, learners will not be able to use the summary in a constructive way. They will develop only a limited understanding of the text.

Discussion

So how can reading pedagogies account for the influence of AI summarizers on learners' meaning-making processes?

Banning AI summarizers is improbable if not impossible. It may not even be wise. AI summarizers could lead to deeper understanding of material and concepts. Rather than hindering how learners relate to materials, AI summarizers could be a catalyst that enables them to understand material, connect conversations, and be better positioned to join them. Generated summaries could lead to a deeper understanding of material and concepts. The key is to help learners use summarizers strategically and understand what reading strategy can be complemented by them.

The connection between reading and writing extends beyond challenging reading practices. It extends to how learners assess, process, revise, and implement AI-generated text in writing. If learners achieve only a surface-level understanding (i.e., summary) of a text, then there is equally a risk that they will interpret only the surface of AI-generated output. Essentially, they won't know what they don't know. If a learner has only a fragmented understanding of materials, which is something that AI summarizers can exacerbate, then they cannot work in relation to those materials effectively. They may lack the tools to develop and communicate on a conceptual level. They may also not be set up to build knowledge in their discipline.

So What Can be Done?

In the following subsections, I will briefly detail some pedagogical considerations. My intention is to begin a conversation around these areas to prompt future research. This

project's focus on reading was designed to gain a high-level understanding of how learners were using AI summaries in their knowledge-making practices. It is limited in the pedagogical nuances of how individual classroom practices can change.

This limitation is where future research comes in. Future research should examine how useful strategies—like rhetorical reading and deep reading—get adapted in a classroom where AI summarizers influence student learning. Data-informed research into reading pedagogies that are complemented by AI tools will be most useful to chart a more nuanced path forward.

Reading Before Class Cannot Be Assumed

It is imperative that educators recognize that many learners (undergraduate or otherwise) simply will not complete the reading. A best-case scenario may be that many will have generated a summary before class. However, as Adil noted, this is not new news. AI summaries could, however, prompt a reconsideration of how reading is built into the classroom curriculum.

Given that many learners will have a fragmented understanding of a text—in part because AI summaries are prevalent—pedagogies will need to adapt. Summaries provide a surface-level understanding, and pedagogies can cue learners to move beyond this surface to engage with nuance. To do so, however, requires that postsecondary writing courses create more space for reading to happen in the classroom itself. The disproportionate emphasis that writing gets in postsecondary classes (Carillo, 2016) could benefit from some rebalancing. Doing so could lead to a closer alignment of reading and writing pedagogies and add much-needed emphasis to the connection between reading and writing practices. Making space for reading in the classroom means certain writing competencies may receive less attention. As research around AI tools develops, a clearer idea of which writing skills remain fundamental for learners will emerge. An important next step for research will be to determine how reading practices can support those fundamental competencies.

*Increased Emphasis on Deep Reading and Rhetorical Reading in the Writing Classroo*m

It is worth underscoring the value of rhetorical and deep reading for learners' writing development. These practices offer approaches that can mitigate potential risks associated with an overreliance on AI summaries. The focus that these practices place on engaging with the conceptual dimensions of texts, and the emphasis placed on connecting ideas from one resource to another, encourages learners to move beyond surface-level engagements.

Postsecondary pedagogies do not necessarily need to invent new reading strategies to compensate for AI's influence. Useful frameworks for reading exist and can be adapted to new pedagogical environments. Practices such as deep reading and rhetorical reading must be more prominently woven into the fabric of writing courses, and research must evaluate how these practices work alongside AI summaries as a reality of student learning.

Develop Pedagogies Around AI Summaries

An important takeaway from the data is that AI tools do have potential to support learners' reading and help them apply what they read to their writing. There are problematic applications, but their existence underscores the need for increased focus on reading pedagogies in postsecondary writing classrooms. Learners are using AI summaries, and instructors must teach to this reality. Pedagogies that address the fine line between using an

AI summary to support learning and using it to override learning will be useful. They must account for various ways AI summaries can lead to fragmented understanding. The more data that is collected about reading and AI tools, and the more classroom case studies specific to reading practices with AI that are published, the better positioned writing instructors will be to thoughtfully address AI summaries and their influence on pedagogy. They will also be in a better position to teach useful reading strategies, such as rhetorical reading and deep reading, within a context that is influenced by AI.

Conclusion

AI summaries could pose a threat to student learning. There is a threat that learners develop a fragmented understanding of what they read if they overly rely on AI. There is a threat that they dance along the surface of an idea without fully understanding it. In doing so, learners are bound to miss connections between what they read and how they write. However, when used to triangulate information, AI summaries can be helpful. They can offer one more way to assess whether a resource is applicable to a research context. AI summaries can increase the accessibility of complex material so long as they are used judiciously.

These dimensions of AI produce various tensions that must be worked out through future research. Hopefully, this article will begin conversations around some pedagogical tensions, bringing them to light and opening pathways for next research steps. Reading has received little discussion in the literature around AI even though it influences postsecondary pedagogy and writing. Research focusing on writing and AI is useful, but it is stronger when it is balanced with research around a crucial ingredient to how people write in the first place: reading.

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