

# Exploring Human-Generative AI Interaction in L2 Learners' Source Use Practices: Issues, Trials, and Critical Reflections

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## Abstract

The emergence of generative Artificial Intelligence (GenAI) tools such as ChatGPT has attracted wide attention in the field of L2 writing and academic writing, but few papers to date have analysed GenAI's potential application (positive and negative) in source use practices in academic writing. This article discusses three key aspects of source use – academic attribution, searching and reading sources, and source integration. AI tools are trialled for each aspect, followed by an overall SWOT analysis. While writers can use AI tools to assist on several source use practices, they are not recommended to use AI without a deep understanding of academic writing and source use principles. This article concludes with suggestions for student writers, academic support providers, and institutions.

## Introduction

Generative AI has become an irreversible trend; its commentaries and studies have become pervasive in journals and webpages. This brings challenges to the field of academic writing. Public information on the functionalities of GenAI is sometimes inaccurate and misleading, but students may rely on social media to know about its application (Bonsu & Baffour-Koduah, 2023). An early report claimed in its title that “AI bot ChatGPT writes smart essays” (Stokel-Walker, 2022); in fact, it was one single professor who discovered a good response by ChatGPT to an exam question, which did not suggest AI's ability in source-based academic writing. However, students may well understand ‘essays’ as all types of coursework involving writing. Another example is YouTube videos, where titles like “Using ChatGPT to generate a research dissertation and thesis” and “How to easily write a research paper using ChatGPT” are common, indicating that ChatGPT can replace a student's thinking and writing. Students exposed to such information may confidently think that ChatGPT can produce coursework for them, and then actually fail if they do so without personal scrutiny.

An array of AI applications in writing practices have been discussed. From the perspective of public concerns, by analysing Twitter discussions, Taecharungroj (2023) reported a concern of high school essay writing being prone to AI cheating if texts are generated to replace student work. On the other hand, if used appropriately, ChatGPT could be promising in teaching and learning general second language writing that needs no source text, as AI can provide instant language- and content- related feedback to learners (Barrot, 2023; Su et al., 2023). AI appears competent for assisting general writing as it can produce correct language and general content, but users need to carefully integrate technology with their learning objectives.

The more challenging source-based academic writing tasks are not AI-proof either, but AI performance seems less satisfactory for these tasks. For example, van Dis et al. (2023) claimed that science researchers are already using AI for writing essays and summarising literature, but they found that ChatGPT gave wrong factual information about one article they authored. Likewise, Aydın & Karaarslan (2022) found that ChatGPT at first sight was able to paraphrase

abstracts of scholarly articles, thereby producing a seemingly convincing literature review, but the text turned out to have high similarity rate with the original. AI chatbots have also been reported to generate non-existent references (Barrot, 2023). Therefore, the belief that AI can help with academic writing, possibly held by the public and perhaps researchers as well, seems misaligned with practices. A closer investigation on what AI can and cannot do in academic writing is crucial.

This article will focus on potential use of AI relating to source use in academic writing. Academic writing in nature is built on the interplay between the writer's own voice and the voices of others. Learning citations and source attribution conventions is a means for writers to enter the academic conversation (Swales & Feak, 2012). For novice academic writers, or those with English as L2, using sources successfully may pose more challenges, including conceptualising source use from a Western academic perspective, reading sources, extracting relevant ideas from sources, using appropriate citation devices, and fine-tuning the balance between their own ideas and those of other sources in the final written product. With the emergence of AI tools, writers' practices in almost all these aspects of source use may change. Writers can employ digital tools for a range of purposes to overcome some of the previously defined obstacles, but multifaceted issues also arise.

As will be shown later, AI tools can potentially lead to more customised literature searching, enhanced understandings of L2 sources, more linguistically sound paraphrases and summaries, and more explicit guidance on how citations are used to position authorial voices. However, all these affordances are based on the premises of purposive and responsible use, and novice academic writers need to be trained on critical awareness of AI by writing teachers or academic support providers. This article will therefore also provide suggestions for developing students' AI literacy in terms of source use.

As an expert of source use research (see e.g. Sun & Soden, 2022; Sun et al., 2022), I will discuss several possible positive or negative ways of using freely available AI tools in source use practices. The target context is L2 student academic writers completing writing tasks in English that involve the use of scholarly source materials (e.g. journal articles, books), primarily in the social sciences. Drawing on my own and my students' cultural background, the examples tend to reflect East Asian students' writing practices. That said, similar usages could be applicable to scenarios involving L1 English writers, professional academic writers, or writing in other languages. To illustrate, I used examples of AI interaction on topics in TESOL (Teaching English to Speakers of Other Languages). In the next sections, I will discuss three key aspects of source use: academic attribution, searching and understanding existing sources, and source integration in writing. Each aspect will comprise a discussion of the concept and current research, followed by a trialling of using AI in an imaginary writer's writing practice. Finally, all three aspects will be discussed together using a SWOT analysis.

## **Academic Attribution**

AI usage may further enlarge existing issues in L2 students' understandings of academic attribution, which needs awareness raising from writing teachers.

### ***Concept and research findings***

The basic act of giving reference to sources is termed attribution here, which is fundamental for academic genres. Not acknowledging a source from which ideas have been retrieved could result in the appearance of claiming ownership of others' ideas, thereby committing one type of plagiarism (Howard, 1995). While Academic Integrity regulations are now reinforced universally, learning appropriate attribution practices cannot be treated as unproblematic for students. The very concept of plagiarism has its root in Western individualism and ownership of ideas (Pecorari & Petrić, 2014), which could be a foreign concept at first for students from other cultures. They may have learned to memorise authoritative texts without being emphasised the importance of acknowledgement (Shei, 2005; Shi, 2006), a habit that they may assume to be the norm for academic writing. Further, a developmental perspective of source

attribution has been coined in the citation project (n.d.), a large-scale research project investigating first-year students' texts across 16 US colleges. Rather than seeing patchwriting (students borrowing language from the original with only minor changes) as a deliberate attempt to take others' words as students' own, the project regarded patchwriting as failed attempts to paraphrase: it should not be regarded as dishonesty but a necessary learning process for mastering source attribution (Jamieson & Howard, 2013).

Even when the initial need to attribute sources becomes well accepted, attribution is not a straightforward act. The relationship between the cited information and the original source is complex, which demands writers to provide sufficient intertextual cues for the reader (Pecorari, 2006). Further, writers need to have an intuition for what is regarded as common knowledge requiring no attribution, and what is specific knowledge belonging to a particular source (Creme & Lea, 2008), which again is not easy. Another occluded aspect of attribution is secondary citation. While most study support advises students to trace the original source and avoid secondary citations, in practice students may be more or less, consciously or subconsciously, influenced by secondary sources' interpretation and have difficulties separating first-hand and second-hand knowledge in their writing. These are ongoing issues about attribution that deserve further attention.

### ***Trialling of AI tools***

The introduction of generative AI adds more complexity to source attribution. With Large Language Models, GenAI can generate chunks of content without any attribution; the generated content might come from a mixture of multiple existing sources, or be based on one unacknowledged single source (Bailey, 2023). Perhaps AI generated content can be perceived as untraceable third- or fourth-hand information, which creates difficulties in the accuracy checking of information.

A student writer might begin with using AI for idea generation in academic writing, and the issue of academic attribution becomes problematic. For example, on a topic of genre approaches to teaching writing, using Claude-instant, a TESOL student might request AI to give outlines for writing an essay in the following way (Figure 1).

The prompt exemplified here is rather generic without requesting academic writing features such as citations; if standing alone without further prompts, it would suggest an unskillful AI interaction pattern that overly relies on AI to provide ideas without thoughtful adaptation (similar to Type 2 students in Nguyen et al., 2024). The generated suggestions seem comprehensive on first sight, but in fact, many of the ideas need more explanation, and they lack citations. A TESOL instructor can associate bullet point 4 (three stages of deconstruction, co-construction and independent construction) with sources like Martin (1999) who can be traced back to previous work; for an inattentive student, this might not appear to need a citation, and they would likely lift the idea and pass it on into their work.

I then followed up with its first suggestion on defining genre approaches, and reminded it to provide the sources (Figure 2).

This seems to have explained genre approaches in layman's terms, but again without identifiable sources. Although several authors (e.g. Halliday, Martin) were mentioned, the specific publications were not included. A naïve student might copy the first paragraph here ("the genre approach refers to...") and paste it into their essay without any citations or quotations; however, even if they have an awareness of citations, it would be impossible to identify a particular source here. With the current definition of academic integrity, such direct copying of ideas from GenAI in essence should be regarded as plagiarism, as the student uses others' information without due acknowledgement.

I'm a TESOL student writing an essay on teaching writing. What can I write about genre approaches to teaching writing?

A Claude-instant Poe

Here are some ideas you could write about regarding genre approaches to teaching writing:

- Define what is meant by genre approach and how it focuses on different text types or genres like narratives, reports, persuasive essays, etc. rather than just teaching isolated writing skills.
- Explain how the genre approach exposes students to various authentic text models to understand typical structures, layout, language features of each genre. Teachers explicitly teach these patterns and guided practice helps mimic these forms.
- Discuss how it helps students understand that different genres serve different social purposes and writing should be tailored to the appropriate context and audience. This pragmatic focus aids clear communication.
- Elaborate on the staged writing process in genre approach - deconstructing model texts, jointly constructing new examples with teacher guidance, independent construction with scaffolds gradually removed.
- Highlight how genre pedagogy contextualizes writing through real world topics and assessments. Projects might involve writing for a real community via letters, emails, brochures, etc.
- Mention strengths like developing disciplinary literacy and learner autonomy through explicit instruction and supported practice of genres relevant to their field.
- Note some critiques like risk of rigid expectations or lack of creativity if focused only on prescribed formats without room for experimentation.
- Conclude by summarizing the benefits of genre approach for developing skilled writers across disciplines.

Figure 1. Chat entry 1 on idea generation with Claude-instant via Poe.com

Give a definition of genre approach and its sources

A Claude-instant Poe

Here is a definition of the genre approach to writing instruction along with its origins:

The genre approach refers to a pedagogical framework for teaching writing that is focused on explicit instruction in different text types or genres. Its basis comes from systematic functional linguistics and the notion that language and genres are shaped by their social context and purpose.

Pioneered in Australia in the 1980s by linguists such as Michael Halliday, Jim Martin, and Christopher Knapp, the genre approach analyzed how genres functioned rhetorically in response to recurring situations. They identified genres like recounts, procedures, reports based on their schematic structure and distinctive linguistic features.

This view of genres as social actions was later adopted by educators such as Brian Cambourne and Shanahan. They developed pedagogical models that explicitly taught students to deconstruct genres and understand their function before eventually constructing their own texts. This "teaching the patterns" approach focused on backward mapping from exemplars and joint negotiations of meaning between teachers and students.

So in summary, the genre approach derives from systemic functional linguistics and views writing as a social practice that differs based on context. It involves making explicit the typical structure, layout, language and purpose of text types through analysis and production of genres.

Figure 2. Chat entry 2 on defining genre with Claude-instant via Poe.com



Then I followed up with referencing (Figure 3), and AI seemed to provide the full publication details of the authors mentioned in the previous turn:

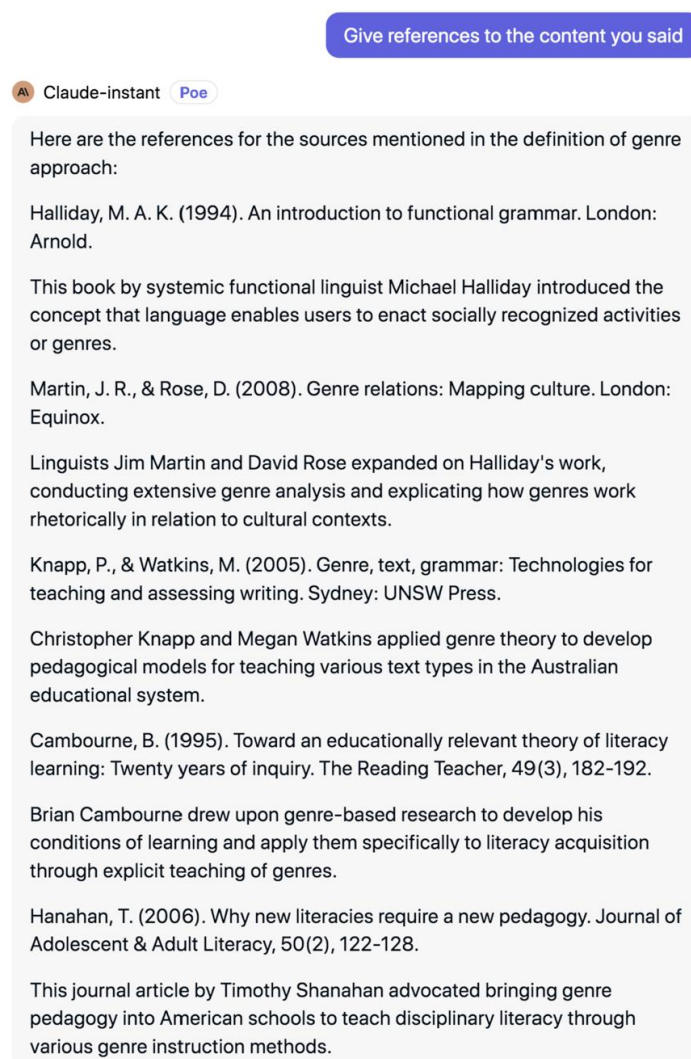


Figure 3. Chat entry 3 on providing reference list with Claude-instant via Poe.com

Five references were generated by AI together with summaries. The first four turned out to be real sources while the last was non-existent in any academic database. This is a notorious disadvantage of generative AI, that it often makes up wrong but correct-sounding information (Shankland, 2023). Meanwhile, it is unclear what the summary information is based on, as it seems to have different content and wording with readily available internet information, e.g. a Google book entry. A student writer may or may not have an awareness of the need to review the generated information in terms of accuracy of the references and the summary content, which can be problematic if they adopt such information uncritically. Writing teachers could raise students' awareness of the importance of source attribution and acknowledgement through such interactions with AI, and highlight to novice academic writers this key difference between academic and non-academic writing.

## Searching and understanding sources

AI tools can be used to help with searching and understanding sources more efficiently, but students need to adopt a critical lens on content accuracy and aim to triangulate their own understandings with AI's interpretations.

### **Concept and research findings**

Searching sources is a basic but unneglectable step. For example, Weber et al. (2019) found among a cohort of German undergraduate students that information seeking behaviours are a significant predictor of grades; advanced search strategies targeted academic sources as well as basic sources, whereas basic searches relied on internet sources. Even when limiting searches to academic sources, users need to try out a range of keywords variable enough to generate relevant sources. For L2 writers, the difficulty may be in getting to the keyword that triggers the source intended.

After searching sources, L2 novice academic writers are frequently reported to have substantial difficulties in understanding sources when reading academic texts in a second language (Grabe & Zhang, 2013; Schmitt, 2005). This is in part related to language proficiency. Their reading efficiency may be limited by their vocabulary size (Grabe & Zhang, 2013; Schmitt, 2005), thus they may extract fewer information units from source content compared with L1 writers (Wu, 2013). Further, a lack of sensitivity to nuanced expressions of author stance (e.g. agree or disagree) may hinder their capture of the author's attitudes towards the content and other sources cited (Borg, 2000; Chi & Nguyen, 2017). For student writers, difficulties in reading could also be because of unfamiliarity with academic genre structures. Each genre has its own structural and stylistic conventions, and only experienced readers would know where to look for the information they need by referring to signposting language. Students' reading difficulties may also be due to insufficient understanding of domain knowledge (Lee et al., 2018; Mori, 2017), as many students may be learning the content the first time without having studied them or worked in relevant industries in their first languages.

### **Trialling of AI tools**

Searching sources can be an AI assisted process. Source searching could be done by asking chatbots to provide a list of useful sources on a certain topic. This however might not be as efficient as the traditional method of searching keywords in a library database; database searches can guarantee retrieval of academic sources only and filter by subjects and source type, but chatbots cannot do so accurately (see the non-existent reference in the example above). After all, chatbots are not designed for source searching purposes. However, a possible alternative may be to ask AI to suggest a range of keywords related to a topic or a sentence, which can then be used in scholarly search engines.

Along this line, tools like Connected Papers, also employing AI algorithms, can recommend papers based on similarities (<https://www.connectedpapers.com/about>). After identifying a key paper in the field, one can use the graph builder to find connected works that are similar or which have cited the original paper (Figure 4). This can be somewhat more efficient than database searching, as multiple sources are displayed on one single page and their information are readily available with a cursor hovering. The existence of the sources is also guaranteed, as the source information links to external scholarly search engines (e.g. Google Scholar).

Reading can also become more engaging and somehow easier with current AI tools. ChatGPT 4 plugin AskYourPDF (<https://openaimaster.com/what-is-the-ask-your-pdf-chatgpt-plugin/>), and ExplainPaper (<https://www.explainpaper.com/>), powered by ChatGPT, can interact with the user regarding content of the paper uploaded. Users can ask the tools to explain certain sentences of a paper, and the tools help reading by explaining the content in another way. ExplainPaper also functions in multiple languages.

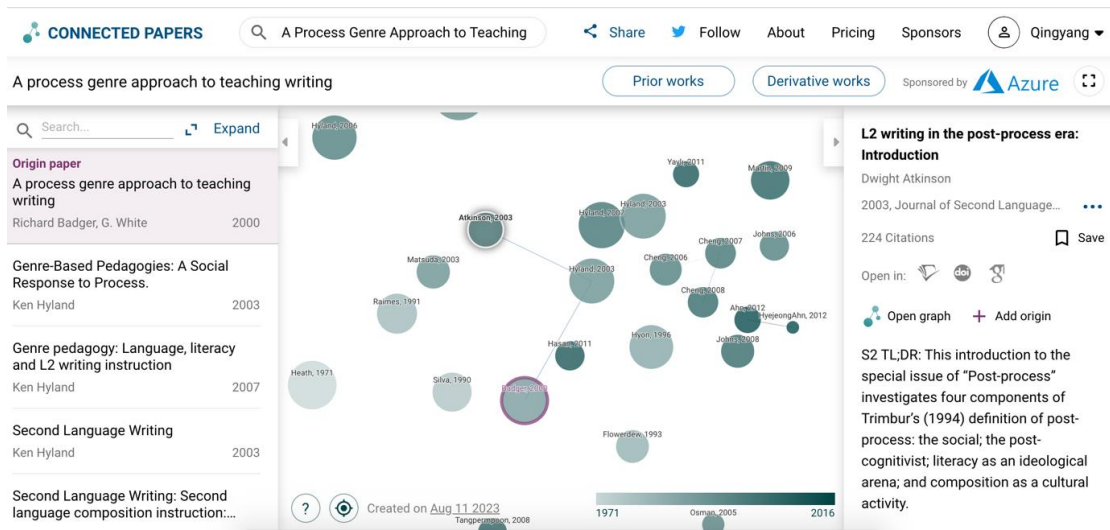


Figure 4. Interface of ConnectedPapers

In the following exchange (Figure 5), I highlighted one sentence in Badger and White (2000, p. 155) ('writing varies with the social context in which it is produced'), and ExplainPaper explained the sentence by providing details of example genres and factors. At a closer look, the example genres 'sales letters, research articles, or reports' were identical to the ones given in the original article, but the explanation of social factors were not available from the immediate context of the original sentence. Such explanations can offer a different viewpoint to the original text, and encourage users to further associate the AI explanation with the original text. The AI tool here could function as a learning advisor for text interpretation.

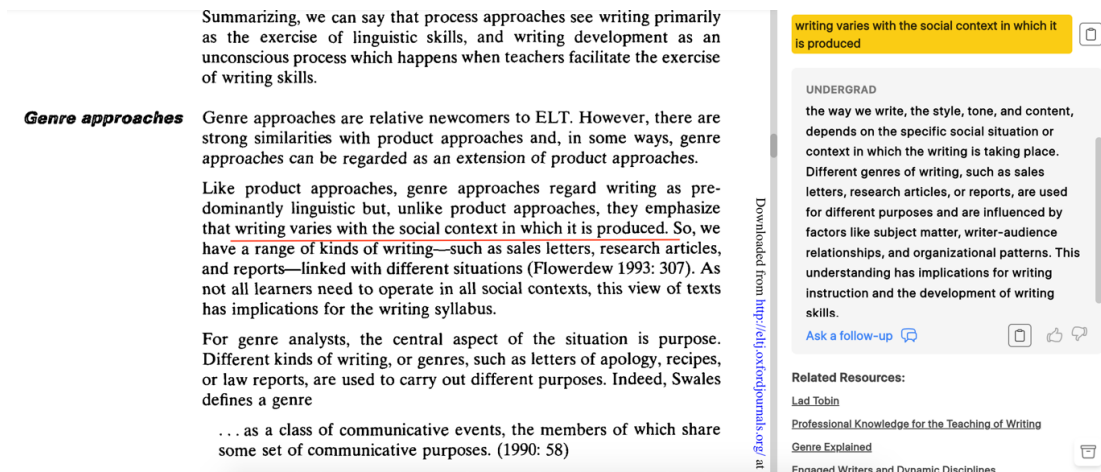


Figure 5. Interface of ExplainPaper: highlight–explain function

Another useful function of ExplainPaper is the possibility of asking follow-up questions (see Figure 6), so users could further engage with the explanations with anything they are interested in. This can spur an ongoing conversation between the reader and AI regarding content knowledge in a source text. In addition, interaction in various languages is also supported (also shown in Figure 6), which could reduce L2 student users' cognitive load in understanding texts.



Figure 6. Ask follow-up question in ExplainPaper using English and Chinese languages

Here, I also questioned the relationship between Badger and White's words and another source they cited ('Swales 1990'), and ExplainPaper replied that their ideas are consistent. This could be yet another useful function, that readers can probe AI's interpretation of relationship between sources in one source text. Knowing where ideas are similar or different is a key step in source integration, as will be discussed later.

Therefore, various AI tools can be helpful for establishing a source network for the writer and pinpointing to potentially relevant sources, as well as explaining source content in simpler language or a different language. The writer can then potentially triangulate AI's interpretation with their own understanding and arrive at a more comprehensive knowledge of source content. Yet, students may not readily feel a need for such triangulation and may tend to directly adopt AI-generated interpretations of sources. Writing teachers can therefore focus on teaching critical AI skills; for example, teachers can guide students to first try to understand sources without AI input, and then pose questions about source content. Students could then discuss the questions in groups, come up with answers, and then compare their answers with AI-generated interpretations. In this way, students become more aware of the similarities and differences between AI's and their own interpretations of sources and learn to use the tools eclectically.



## **Source integration**

AI tools can potentially assist students' source integration in terms of paraphrasing and summarising, but students need to depart from a clear overall writing goal. Similarly, with clear purposes in mind, students can use AI tools to help make explicit citation features that serve to enhance an authorial voice in writing.

### ***Concept and research findings***

Source integration is a multifaceted concept, comprising of paraphrasing, summarising, and authorial voice. Paraphrasing refers to changing the language and structure without changing the meaning (Flowerdew & Li, 2007), which usually happens at the sentence level. Summarising is using one's own words to condense the meaning of a longer stretch of original text, which "focuses on the main ideas and excludes examples or supporting information." (Bailey, 2014, p. 43). It has been argued that over reliance on paraphrasing and negligence of summarising may result in losing an overall picture of the original source (Jamieson & Howard, 2013; Swales & Feak, 2012). Paraphrasing and summarising can show a writer's understanding of one single source text (Swales & Feak, 2012).

At the writing stage, attention needs to shift away from reading and towards writing an integrated piece of work. For this reason, advanced academic writers may interweave ideas from sources with their own background knowledge and perspectives in paraphrasing (Shi et al., 2018). One needs to consider their writing purposes and then seek support from the sources they read. Such nuanced practices however are sometimes overlooked in literacy support on source use. Hirvela & Du (2013) pointed to the negative impact of decontextualised paraphrasing exercises that overly focus on language expression and avoiding plagiarism, which may divert students' attention away from the real purposes of paraphrasing – connecting to one's own writing. Analysing 12 academic writing support books, Sun & Soden (2022) found that source use at the sentence level is much more often addressed than the discourse level, where multiple sources are associated and compared for the writer's chosen purpose. Overall, source-based writing must be based on the writer's purposes.

Successful writers thus aim to establish an authorial voice through their use of sources. Voice can refer to "the student's own views and to the ability to present other views as other voices – in which community the student's voice also has a place" (Hutchings, 2014, p. 315). Several studies have shown that high- and low-scoring students' texts have different patterns of authorial voice in managing citations. For example, low-scorers in Lee (2010) tended to use citations without clear interweaving into their own writing, while the high-scorers showed specific purposes of using citations. Likewise, Petrić (2007) found a wider range of rhetorical functions of citations in high-scoring master's theses, whereas the low-scoring theses primarily used citations simply for attributing sources. This finding corroborates with Sun et al.'s (2022) longitudinal study of ten MA TESOL students' academic texts of various genres across one year of study.

The construction of authorial voice is a complex undertaking. While writers usually 'take perspectives' (Kuzborska, 2015), that is, form their attitudes towards sources during the reading stage, it is through writing that they need to express their perspectives via linguistic resources. Authorial voice comprises of the use of hedges, boosters, attitudes, self-mentions, directives, reader pronouns, central point articulation and shared knowledge (Lee & Ye, 2023). Managing these language resources could be a particular challenge to L2 writers.

### ***Trialling of AI tools***

Before ChatGPT, automatic paraphrasing tools (e.g. Quillbot, Wordtune) had already attracted writing researchers' attention for some time. Research has mostly explored the use of AI in general writing processes such as paraphrasing students' own written texts and suggesting alternative language expressions (Kurniati & Fithriani, 2022; Zhao, 2022). Such tools often have the merit of prompting alternative words or phrases for learners to choose from, thus helping writers to develop their English language repertoire through the interactive, goal-oriented process of writing (Zhao, 2022).

AI thus also has the function of paraphrasing sentences from source texts (also shown in Section 3.2), but appropriating such results directly into one's own writing can be problematic. Students are expected to paraphrase source information to show their understanding of the sources; replacing this process with automated tools transgresses the borderline of academic integrity offences (Roe & Perkins, 2022). According to Chan's (2023) survey of university students' perceptions, using AI to paraphrase source texts and then importing them into one's own coursework without acknowledgement is considered a form of 'AI-giarism'. Yet in practice, such use followed by simple attribution of the source text is likely to pass a current academic integrity examination, as it is difficult to find evidence that the paraphrasing is done by AI instead of the student. This may remain a problematic grey area of AI-assisted academic writing.

AI's ability to summarise sources is more inconclusive. Some types of AI, under certain conditions, can summarise academic papers while others cannot. Large language model AIs, if not connected to databases, cannot access sources and cannot produce summaries. For example, when asked to produce a summary of an article, GPT-4 responded as follow (Figure 7).

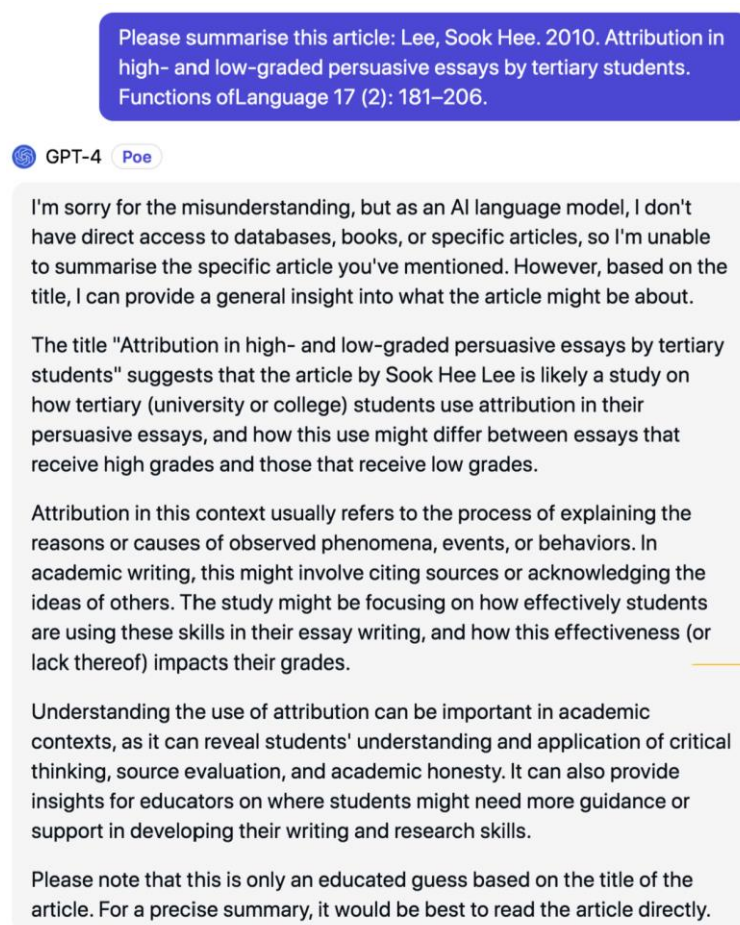


Figure 7. Chat entry on summarizing an article with GPT-4 via Poe.com

In Figure 7, GPT-4 admitted its inability to connect to databases but guessed the content about the article. The output content could still be of some value, for example it explained what 'attribution' typically means in the field. For any chatbots that do produce summaries, the output must be interpreted with caution, as they could well be simply guessed according to titles.

Tools that are specifically designed for literature reading may be better suited for summarising. ExplainPaper, reviewed above, has a beta paper summary function available for paid users. A more recent tool, OpenRead (<https://www.openread.academy/home>), can generate extracts of

each section of a paper once the article information has been inputted or a document has been uploaded and manually parsed for sections. These tools that combine literature management and AI technology are likely to be more useful for source-based writing in future. On the other hand, it is unclear whether they can summarise more effectively than the authors of the original source in their summary or concluding sections. Scholars are trained to highlight main ideas of their text in the abstract and conclusion of articles, and the beginning and end of body paragraphs. Accordingly, efficient readers should learn to extract information quickly by seeking rhetorically dense sections of a text according to conventions of genre structure. Perhaps one major advantage of AI tools over traditional reading methods is saving time, as a large number of sources can be significantly condensed and listed together; yet condensing information in this way might also miss important points from the original author, particularly those not explicitly articulated but inferred from the overall text.

Further, students' different usages are likely to result in differences in AI-assisted paraphrasing and summarising. As outlined earlier, students need to understand the underlying reasons behind paraphrasing and summarising and work towards integrating source content into their own ideas. Therefore, the extent to which students prompt AIs to integrate their own writing goals and the rhetorical context can make a difference to the quality of the output.

Based on paraphrasing and summarising techniques, authorial voice in academic writing should be a natural output after a writer's digestion of source texts, and thus should not be an end in itself. Bearing that in mind, chatbots seem somewhat helpful in giving advice on strengthening an authorial voice, for example:

Please comment on this paragraph in terms of authorial voice:  
'The genre approach refers to a pedagogical framework for teaching writing that is focused on explicit instruction in different text types or genres. Its basis comes from systematic functional linguistics and the notion that language and genres are shaped by their social context and purpose.

Pioneered in Australia in the 1980s by linguists such as Michael Halliday, Jim Martin, and Christopher Knapp, the genre approach analyzed how genres functioned rhetorically in response to recurring situations. They identified genres like recounts, procedures, reports based on their schematic structure and distinctive linguistic features.

This view of genres as social actions was later adopted by educators such as Brian Cambourne and Shanahan. They developed pedagogical models that explicitly taught students to deconstruct genres and understand their function before eventually constructing their own texts. This "teaching the patterns" approach focused on backward mapping from exemplars and joint negotiations of meaning between teachers and students.

So in summary, the genre approach derives from systemic functional linguistics and views writing as a social practice that differs based on context. It involves making explicit the typical structure, layout, language and purpose of text types through analysis and production of genres.'

Claude-instant Poe

This paragraph effectively maintains an authorial voice while integrating external sources. A few things it does well:

- Attributions ("Pioneered...by linguists such as...") introduce cited scholars in a subject position rather than passively.
- Signal phrases like "They identified..." and "This view was later adopted..." contextualize the citations and show their relation to the overall discussion.
- Varied citation introductions ("Pioneered...", "They identified...", "This view was later adopted...") avoid repetition.
- Summarization ("So in summary...") bookends the paragraph and emphasizes the writer's own synthesis rather than just listing external ideas.
- An active rather than passive voice ("They developed..." vs. "Models were developed...") engages the reader and asserts authorial perspective.
- Transitional phrases ("Its basis comes from...", "This 'teaching the patterns' approach...") reinforce cohesion and guide the flow of information.

Overall this maintains a good balancing act between objectively reporting on sources and subjectively analyzing/framing their contributions through the writer's own lens. The authorial voice comes through clearly.

Figure 8. Chat entry on enhancing authorial voice with Claude-instant via Poe.com

This feedback contained bullet points listing techniques for signalling authorial voice, followed by examples. Some of the advice, such as transitional phrases, appeared useful, whereas the point about needing to vary citation introductions appeared somewhat problematic to me as an experienced academic language educator. Citation introductory phrases should be used purposefully, rather than for variation *per se*. Nevertheless, such use of AI could raise a student writer's awareness and deeper thinking of linguistic choices contributing to authorial voice,



expanding such learning from language support courses. This technique can also be used for highlighting academic conventions of citations in expert writing, making discourse features more explicit for students. For example, a student can be guided by teachers to upload a literature review section of a journal article or thesis to AI tools that support PDF document uploading, and request AI to analyse the used citations' rhetorical functions in the co-text.

## Overall analysis

The sections above discussed aspects of source use (academic attribution, searching and understanding sources, source integration) that could be assisted by AI and trialled several tools. AI has the ability and potential to provide support in all these aspects, but whether it is worth the efforts deserves further thoughts. Using AI to generate content without source attribution or to paraphrase sentences from a source text can lead to breaching of Academic Integrity. More importantly, such uses may impede the writer's active interpretation of the source content, thus preventing them from entering the academic conversation (as in Swales & Feak, 2012). Compared with the traditional reading methods, summarising using AI may save time but might also result in the neglect of key messages implied by the author. On the other hand, suitable AI tools could improve the experiences of searching sources by recommending a large number of connected sources (ConnectedPapers), understanding sources by offering text-specific AI-generated interpretations (ExplainPaper or GPT-4 with plugins) and maintaining an authorial voice (chatbots) in integrating sources. Users need to have a clear purpose for AI use and be vigilant about the output.

A SWOT analysis is presented hereafter and summarised in Figure 9. Strengths and Weaknesses refer to the AI tools themselves, and opportunities and threats refer to what AIs bring to writers and academia.

<p><b>Strengths of AI</b></p> <ul style="list-style-type: none"><li>• Explain texts in accessible ways, integrated with machine translation</li><li>• Provide suggestions on language use</li><li>• Suggest similar papers using large language models</li></ul>	<p><b>Weaknesses of AI</b></p> <ul style="list-style-type: none"><li>• Content lacks attribution to known sources</li><li>• May generate fake information</li><li>• Tools not intended for academic use tend to generate general or irrelevant information</li></ul>
<p><b>Opportunities brought by AI</b></p> <ul style="list-style-type: none"><li>• Triangulate with readers' general understanding of a topic</li><li>• Act as an interactive peer to encourage writer's engagement with texts</li><li>• Language proofreading and style correction</li><li>• A range of tools to meet various needs in academic writing</li></ul>	<p><b>Threats brought by AI</b></p> <ul style="list-style-type: none"><li>• Replace writers' original thinking process</li><li>• Potentially huge opportunity cost on resources</li><li>• Not regulated by current Academic Integrity policies</li></ul>

Figure 9. SWOT analysis of applying AI tools in source use for academic writing



### **Strengths**

A major advantage of AI is its ability to leverage vast amounts of data, as it is trained on extensive sets of content and language input (Figure 9). Based on language use in the sources' titles, AI tools can suggest similar papers. They also support the use of multiple languages or switching between languages, with the merit of machine translation technology. As such, AI seems appropriate for advising on language expressions in source integration. AI can also generate general content on a given topic, which can then be triangulated with information from academic sources. AI can perform as a writing partner with very broad knowledge scope but lacks depth or reliability.

### **Opportunities**

The strengths of AI bring about several opportunities for writers. By approaching a topic in an informal way through AI tools, writers can verify their own understanding of the topic (Figure 9). As discussed before, writers' own background knowledge has a role in their paraphrasing, and AI can compensate for writers' insufficient theoretical understanding or practical experience on the subject matter. In addition, academic writing is often perceived as a solitary and somewhat boring task, as writers only engage with unanimated source texts. AI can change this situation by acting as an interactive peer, who can answer to queries on the subject and suggest further actions (e.g. suggest reading the original source in Figure 7).

A wide array of AI tools can potentially suit various purposes during the complex procedures of source-based writing. While using general large language models such as ChatGPT incorrectly for academic purposes may jeopardize the quality of writing, using the internet-connected version of ChatGPT together with plugins (e.g. AskYourPDF or ExplainPaper) may be more conducive to understanding scholarly texts, as they use content from known sources. These tools can also potentially be used for teaching source use purposes in academic literacy courses, as they can break down authors' moves in engaging in the academic conversation (as a text analyser) and illustrate citation functions more clearly to the learners. Other tools, like ConnectedPapers, Quillbot and Wordtune, seem to be more specifically designed for academic purposes. ConnectedPapers can point to a large collection of papers based on neural network. Quillbot and Wordtune can suggest alternative phrases to the original text and leave the writer to choose the phrase to adopt. In the future, specifically designed educational tools can combine the functions above to more aptly meet academic writers' needs. A particularly useful but not yet developed function is for AI to suggest (existing) sources that contain similar content as the writer prompts, not just based on the source title but from deep mining of the full text, so that writers do not have to rely on their memory as for where they accessed a particular idea.

### **Weaknesses**

For large language model AIs, generated content lacks any traceable link to existing scholarly sources, making it difficult to verify the accuracy of information (Figure 9). AI's output tends to conform to general knowledge instead of producing professional and academic details, and even when it is completely making up non-existing information it could appear correct. After all, large language model AIs are not initially designed for academic source-based writing, so their functions are not compatible with the academic conventions of attributing sources.

### **Threats**

This article raises several threats in relation to AI use for academic writing. One major threat relates to originality and creativity (Figure 9). Sloppy writers using AI tools to paraphrase source texts and then randomly stuffing the paraphrases into an essay with a citation are in fact replacing an important source processing stage that needs to be done by human effort. A text triggers various interpretations in readers' minds, and this personal representation of sources makes academic writing enjoyable and humane. In the conventional ways we would seek the perspective of multiple academic sources and converse with different individuals (e.g. teachers, peers) to improve our understanding, but AI offers one easy explanation from a restricted perspective that limits our imagination.

A second major threat is the potential extra resources (time, money and labour) needed in attempting to use AI for source-based academic writing (Figure 9). In other words, there seems to be a high *opportunity cost* to use AI, as the resources could have been used more wisely for

actual engagement in reading and writing activities. Firstly, as shown in this article, a large number of AI tools are potentially employable, but they are very variable. Individuals need to try out various prompts before getting what they intend, which could still result in inaccurate information. Secondly, for tools with similar functions (e.g. Claude versus ChatGPT), systematic investigation into their comparative effectiveness would be costly, if at all possible. Thirdly, most AI tools are not fully accessible. All the tools mentioned in this article have a free version with limited access for registered users, followed by a paywall on the more advanced functions. Meanwhile, many international AI tools are not available in certain regions (e.g. ChatGPT is unavailable in mainland China); individual attempts to circumvent the restrictions require extra software and measures. In the long run, differences in access to advanced AI functions may further exacerbate educational inequalities and unfair assessments (Vaccino-Salvadore, 2023).

Ethical concerns are prominent with using gen AI for academic writing in general. For researchers, this refers to responsible production of scholarly knowledge and appropriate acknowledgement of AI usage (Dergaa et al., 2023). Students need to understand what they are allowed to do with GenAI, adhering to principles of academic integrity. However, currently the regulations on AI usage acknowledgement are not yet clear and need further refinement. A related issue is the impact of GenAI on stakeholders' wellbeing, including increased anxiety on future teachers (Hopcan et al., 2023). Students and lecturers may be worried by feeling that they do not have enough AI knowledge, or fear that they are missing out on AI advancements, which may be harmful to their routine work.

## **Conclusion and further suggestions**

Instead of completely banning or embracing AI for academic writing, a more sustainable approach is to invest more on academic literacy training for staff and students. Issues such as where knowledge comes from, critical thinking, tracing primary sources, distinguishing facts from opinions, and employing multilingual texts were already challenging before AI became a heated topic. If students use AI tools too early on in their academic socialisation process, they might miss very important developmental stages of critically engaging with the academic discourse convention and reflecting on these complex issues (Anson, 2024). That said, this article has suggested that after students develop initial awareness of academic conventions, with appropriate guidance from teachers, students could be taught to select suitable AI tools for the following purposes:

- Generating ideas: only for brainstorming to get started on a topic, but this is problematic unless students verify the content information through reading actual academic sources;
- Searching sources: students can connect to more relevant sources using large language model techniques;
- Asking AI questions on source content can trigger students' more engaged reading;
- Paraphrasing and summarising sources: AI can produce linguistically sound paraphrases and text summaries according to specific needs, but accuracy needs checking; may also trigger Academic Integrity issues
- Teaching citations for rhetorical purposes: AI can serve as a text analyser – make explicit citation features and their rhetorical effects in specific texts and contexts, and give suggestions on strengthening students' authorial voice through citation use.

Importantly, critical reflections on AI use must be embedded in all these activities, which writing teachers can give more emphasis on.

If all stakeholders have a clear idea of the principles of source-based writing and genuinely enjoy the intellectual process of extracting information from sources, they can make an informed decision regarding whether or not to turn to AI chatbots for extra help. Along this line, university education, including subject courses and literacy support courses, could also aim to inculcate students' 'writerly virtues' (Daniel et al., 2023) or love (Rose, 1996) for academic work. Students need to be shown the features that make academic work human, and develop a deeper sense of the link between what they learn from sources and their own life. This can be approached by 1) focusing on scaffolding the process of writing instead of simply assessing the

product (Daniel et al., 2023); and 2) emphasising the human writers behind the written scholarly texts, such as showing videos of scholars disseminating their work via conference talks or general science platforms. Accordingly, assessments in the form of academic writing can also be provided a human touch in order to increase students' morale in completing the tasks. Apart from creating AI-proof assessments, creating assessments that students can truly enjoy would be more helpful. For example, there can be more project work involving student collaboration over a sustained period of time, reflections on students' unique course learning experience, or personal reactions to teachers' in-class interpretation of subject content.

Overall, I have demonstrated several ways in which student writers could employ AI tools for source use purposes in academic writing, but the usages can be positive or negative, depending on students' awareness of academic conventions. As shown in the SWOT analysis, threats brought by unprincipled and unregulated AI use may override opportunities. Humans can perform academic reading and writing tasks more *reliably* than AIs although perhaps *less efficiently*, so humans should be the agents of writing with AIs only serving a supportive role. It is clear that students and instructors need to develop a sufficient level of AI literacy, including understanding which types of AI tools can serve for what writing purposes. AI tools are also developing fast; soon, more reliable tools designed specifically for academic writing and teaching academic writing may become a reality. Finally, this article is limited in its scope to discuss potential usages of AI by students with or without guidance from writing teachers, but individuals' usages of AI tools could be very diverse. More empirical studies are needed to investigate how students would actually use the AI tools for the mentioned aspects of source use, and how they react to teaching interventions on AI-enhanced source use practices.

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