

DEVELOPING AI LITERACY: HOW EAP STUDENTS NAVIGATE GPTS RESPONSIBLY THROUGH SCAFFOLDED LEARNING

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Abstract: As AI-powered chatbots become prevalent among English language learners' (ELLs), many post-secondary educators are concerned with generative AI (GenAI)'s impact on students' language skills, critical thinking, and active cognitive engagement in the learning process. Academic honesty is an added concern, as emerging research suggests that learners may lack the necessary skills to engage with GenAI in a responsible way that is conducive to learning. This publication argues that, rather than avoiding GenAI, there is a pressing need for postsecondary educators to incorporate AI literacy in their teaching practices. To address such need, this exploratory study examines how ELLs can use GenAI to promote sustained learning. The research focuses on an English for Academic Purposes (EAP) course in which participants engaged with AI literacy instruction while using ChatGPT in scaffolded learning tasks. Both quantitative and qualitative data on students' experiences with ChatGPT were collected through a post-instruction survey. The findings demonstrate that although students perceive GenAI as a tool for enhancing their language skills and adapting to their learning needs, they are also aware of GenAI limitations (e.g., inaccurate output) and share educators' concerns (e.g., overdependency on AI tools and breaching academic integrity). Implications from this study suggest that when educators adopt a pedagogical framework grounded in critical thinking and digital literacy, GenAI can complement rather than replace students' learning. This approach fosters active learning through scaffolded activities designed to help students deconstruct, evaluate, and responsibly integrate GenAI-generated text into their own writing.

Keywords: Academic writing; AI literacy; English for Academic purposes (EAP), English language learners (ELLs), generative AI (GenAI)

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1. Introduction

With recent technological advancements reshaping the educational landscape, numerous articles and workshops have been created to address the benefits and drawbacks of allowing the use of generative AI (GenAI) in the classrooms. While this concern spans across various disciplines, it is particularly pronounced in English for Academic Purposes (EAP) classrooms (Ibrahim, 2023), where postsecondary students are more likely to rely on Automated Writing Assistance tools (AWEs), such as Grammarly, Microsoft Editor, and WriteToLearn. In today's GenAI era, these students may also turn to generative pre-trained transformers (GPTs), such as ChatGPT, to support their writing. While pre-AI-era AWEs mostly served as intelligent writing assistants that edited students' work by making suggestions to improve grammar, punctuation, and style, GPTs go a step further by summarizing, paraphrasing, and generating unique content when given specific prompts (Yeo, 2023). The use of these tools exacerbates issues related to questions of authorship over students' own writing and the potential for plagiarism. Educators are especially alarmed by GPTs' potential to negatively impact the development of ELLs' writing and cognitive skills (Barrot, 2023; Cardon et al., 2023; Cong-Lem et al., 2024). Concerns surrounding AI use have contributed to language instructors' reluctance to integrate it into their teaching practices. However, as AI overtakes different academic and professional spheres, it is essential to explore how EAP students can effectively use AI as a tool that supplements rather than hinders their learning.

In response to this need, our paper examines the implications of using ChatGPT and AI tools with similar functions in EAP classrooms. It begins with a literature review that addresses the challenges and affordances of incorporating such technology into learning practices in EAP courses. More specifically, the review addresses how students' critical thinking, writing, and research skills, as well as their learning motivation and confidence, may be impacted by the use of ChatGPT and similar tools for language learning tasks, such as revising their work, paraphrasing, brainstorming, and/or gathering information on topics of interest. This article then reports on the findings of an action research-based study centred around two key questions:

1. How may incorporating GenAI in learning activities and writing practices impact EAP students' AI literacy skills?
2. What are EAP students' experiences when using GenAI in learning activities and assignments designed to enhance writing, critical thinking, and research skills (e.g., brainstorming ideas, revising their writing, summarizing course readings, etc.)?

For this purpose, students in a credit-bearing university-level EAP course engaged with GPTs responsibly in the context of AI literacy framework-based activities (Warschauer et al., 2023). They were then instructed to use ChatGPT to summarize readings, brainstorm ideas, and revise their work in the context of scaffolded formative assessments and learning tasks. Students' insights resulting from this learning experience were gathered through a post-intervention survey. While stressing the significance of teaching AI literacy, this publication suggests that instead of relying on detection tools or traditional in-class pen-and-paper assessments, postsecondary educators should reconsider their pedagogical approaches. Rather than viewing GenAI tools as a challenge to traditional assessment methods, educators should embrace their potential benefits and consider how, if used responsibly, these tools can positively impact students' writing development.

2. Literature Review

2.1 *The Challenge of Detecting AI-generated Texts*

Since the launch of ChatGPT in 2022, instructors have been struggling to distinguish AI-generated content in students' essays. Since GPTs use “natural language generation and processing to understand and generate natural human language text” (Birenbaum, 2023, p. 1), traditional plagiarism detection software often fails to identify AI-generated texts (Weber-Wulff et al., 2023). As shared by Thorp (2023) in a study involving academic reviewers at a scientific journal, only 63 percent of all ChatGPT-generated abstracts were detected. For this reason, despite advancements in AI detection tools, the fact that these technologies are often prone to inaccuracies and false positives (Ibrahim, 2023; Weber-Wulff et al., 2023) leads many educators to treating detection tools as supplementary resources rather than relying solely on them to identify AI-generated content (Elkhatat et al., 2023).

2.2 *Academic Integrity and Institutional Policies*

To date, the possibility of students using AI to generate content while claiming authorship over their submitted work continues to raise concerns over academic integrity among postsecondary educators. The institutional policies on academic integrity across Canadian universities comply with the International Center for Academic Integrity (ICAI) by underscoring the importance of transparency, honesty, and responsibility in academic work. In particular, the policies emphasize that individuals should not falsely claim credit for the ideas, writing, or other intellectual property of others, or use unauthorized aid to complete an assignment. Consequently, in agreement with Amin (2023), when students submit AI-generated texts without proper acknowledgment, they not only commit plagiarism but also undermine their institution's principles of academic honesty. Unless students declare that all or sections of their text have been AI-generated, those submitting such work are, by definition, plagiarizing.

2.3 *The Impact of GenAI on Language Learning*

Even if students do cite the AI tool used, relying on AI to generate content remains problematic: not only are instructors wary of students implementing GenAI for their coursework, but many also argue that GenAI misuse may hinder and devalue students' learning process. Yeo (2023) suggests that for second/additional language learners, reliance on GPTs - if not used responsibly - could negatively impact language development and deprive learners of the opportunity to develop academic writing skills. Paraphrasing, in particular, is a complex skill that requires learning through practice. As noted by Yeo (2023) and Ho (2023), if students rely on GenAI to paraphrase, the result may be superficial patchwriting. Equally important, depending on AI for this task deprives students of the opportunity to engage in the practice necessary to develop this essential academic skill. The problem with AI's misuse, Yeo continues, involves the way it may hamper “cognitive, linguistic, and socio-emotional competencies that they could gain through engaging in authentic academic writing processes” (p. 2). Along these lines, Cardon et al. (2023) warn that using GenAI tools as content generators not only impairs students' writing skills and the development of their critical thinking abilities, as argued above, but also diminishes students' sense of agency and ownership over their work.

Although numerous studies advise exercising caution when integrating AI into EAP curriculum, there is also ample evidence suggesting that when implemented ethically and responsibly, GenAI tools are an asset that facilitates learning.

2.4 Academic Writing Skills

Multiple studies report on GenAI's positive impact on the learners' awareness of linguistic, structural, and stylistic textual features (Barrot, 2023; Polakova & Ivenz, 2024; Song & Song, 2023). Most exploratory studies compare students' writing before and after incorporating GenAI and examine students' perspectives on the usefulness of the tool through surveys and/or interviews, thus assessing the learners' progress and self-efficacy. For example, by analysing writing samples and post-intervention survey results, Kavanagh (2023) suggests that summarizing and paraphrasing GenAI tools enhanced learners' ability to notice grammatical, structural, and vocabulary features. Meanwhile, Silalahi (2024) learns through surveys and interviews that although students appreciated ChatGPT's editing functions that expanded their knowledge of grammar and vocabulary, they felt that AI-generated paraphrase was too close to patchwriting. Likewise, participants in Kohnke et al.'s (2025) and Song and Song's (2023) research studies explain that despite visible improvements in the organization of their writing, more sophisticated vocabulary and grammatical constructions, ChatGPT's output was not quite accurate and did not adapt to their writing style. Barrot (2023) further adds that GenAI might have somewhat limited capabilities in terms of expressing/emulating writing voice and identity, although it can analyse and improve other features of students' writing and adjust its output based on their proficiency.

2.5 Immediacy and Adaptability

Studies confirm that engaging with ChatGPT as a formative feedback tool leads to enhanced writing skills (Mahapatra, 2024; Polakova & Ivenz, 2024). Writing is a continuous process, and as such, the development of academic writing skills largely depends on timely and comprehensive feedback. While instructors and teaching assistants are often not able to offer immediate feedback, GenAI tools provide an instant response that targets diverse aspects of writing ranging from content and style to grammar and syntax (Barrot, 2023; Ibrahim & Kirkpatrick, 2024). Although ChatGPT-generated feedback may lack informational accuracy and sensitivity and may reflect biases in its training data (Ray 2023), this language model provides personalized recommendations that can be tailored to learners' needs (Jagdishbhai & Thakkar, 2023; Wu, 2024).

2.6 Learning Autonomy through Dialogue

An important feature of GenAI feedback is its dialogic nature and adaptability. Learners can interact with GenAI tools by formulating a query, requesting suggestions, and continuously prompting the tool to modify its output. This process contributes to their active engagement, helping writers to control what and how they learn. Consequently, learners choose the extent to which ChatGPT can be utilized to accomplish their learning goals. Each interaction with GenAI is a set of decision-making steps, which enables students' sense of ownership of their learning (Qu & Wu, 2024). Framed in the theory of self-determination, Du and Alm's (2024) study suggests that learning motivation and autonomy are increased exponentially if students believe that they can communicate effectively in the target language, feel reciprocity while communicating, are able to choose learning activities and goals, and understand how their choices positively impact their learning. Through interviews with students, Du and Alm have confirmed that the above conditions are met through implementing ChatGPT. With GenAI's support, multilingual students can identify their learning needs and successfully and independently address them, which positively impacts self-directed learning.

2.7 Motivation and Self-efficacy

Due to their self-learning nature, ChatGPT and similar GenAI tools can adapt to learners' needs by catering to their diverse learning styles and preferences, thereby nourishing a customized, engaging, and non-threatening learning environment (Du & Alm, 2024; Jo, 2024; Polakova & Ivenz, 2024). By experimenting with AI, students have a safe space to practice their language skills without being judged against standardized proficiency norms, which results in more positive attitudes to language learning and increased self-confidence (Lee & Davis, 2024). Along such lines, Zhang et al. (2024) discuss how learning facilitated by GenAI decreased students' anxiety and reinforced their enthusiasm when communicating in English. In addition, students are given the opportunity to learn at their own pace, focusing on specific areas of interest and relevance, which contributes to enhanced learning engagement and motivation (Jo, 2024; Tajik & Tajik, 2024; Youseff et al., 2024). As illustrated in the study by Chan et al. (2024), there is a strong correlation between students' investment in revising their drafts and AI-generated feedback.

2.8 Generating Ideas

GenAI is frequently applied when brainstorming and planning essay topics and outlines. Although some studies are concerned that overreliance on AI might interfere with students' creativity (Barrot, 2023; Kasneci et al., 2023; Niloy et al., 2024), most researchers highlight AI's potential as a tool that not only inspires relevant ideas but also saves time (Avsheniuk et al., 2024; Kohnke et al., 2025; Mahaparta, 2024; Polakova & Ivenz, 2024). Findings from a longitudinal study by Toma and Yáñez-Pérez (2024) and a short-term experimental study by Urban et al. (2024), suggest that ChatGPT could enhance creative problem-solving skills.

2.9 Research Skills

Proficiency in using GenAI tools is directly related to the development of research skills as students learn how to formulate a search query and identify reliable sources. Kasneci et al. (2023) suggest that as students research information through AI tools, they are more apt to determine what they need to learn about the topic. Concurrently, Rudolph et al. (2023) highlight that by prompting learners to ask questions, AI stimulates inquiry-based thinking. Meanwhile, as per Ibrahim and Kirkpatrick (2024), it is important that educators focus on encouraging and building students' responsible practices of searching for and deconstructing AI-generated content to cultivate their online research skills.

2.10 Critical Thinking

Key outcomes of EAP courses focus on critical thinking in academic reading and writing contexts. This entails deconstructing and critically evaluating texts, developing persuasive arguments, and supporting them with relevant evidence. Even though some educators and researchers might perceive GenAI as detrimental to the development of learners' critical thinking (Barrot, 2023; Cong-Lem et al., 2024; Kohnke et al., 2025), others have identified a positive correlation between learners' critical thinking skills and AI literacy (Darwin et al., 2023; Suriano et al., 2025; Tajik & Tajik, 2024). Based on the results of interviews with language learners, Nghi and Phuc (2024) conclude that GenAI tools have improved students' ability to identify biases, evaluate credibility, and navigate digital environments for academic purposes. Similarly, Youseff et al.'s (2024) study demonstrates how questioning validity of the content generated by ChatGPT induced students to search for additional evidence via more reliable sources. However, Zhou et al. (2024) point out that although GenAI might provide an environment that nurtures critical thinking and problem-solving, learners need educational support in developing those skills. To corroborate this, Avsheniuk et al. (2024), Ibrahim and Kirkpatrick (2024), and Warschauer et al. (2023)

suggest that teachers need to foster students' ability to critically reflect on, assess, and make an informed choice on how and to what extent to use ChatGPT's output.

As research examining how GenAI tools can foster learning becomes more prevalent, even the most enthusiastic proponents of AI acknowledge that students need educators' support to guide them in acquiring AI literacy skills while adhering to academic integrity policies, which may vary across educational institutions (Barrot, 2023; Warshauer et al., 2023).

3. Methodology

3.1 Context

This small-scale exploratory study examines the experiences of English language learners (ELLs) who utilized ChatGPT and/or comparable GenAI tools for course-related purposes in the context of learning activities (e.g., brainstorm ideas, revise course assignments, summarize readings, etc.). The study was conducted in a 12-week EAP course at a Canadian university. The credit-bearing course was an elective designed for undergraduate students from different disciplines seeking to enhance their academic English skills. Embedded in the pedagogical framework of content and language integrated learning (CLIL), the course enhanced language proficiency with a focus on writing, reading comprehension, presentation, and research skills, aiming to equip students with transferable skills and strategies to support their academic success. In this course, students worked on a multistage research project that involved scaffolded formative assessments (i.e., annotated bibliography, research proposal, informal presentation of research findings, and multimodal research report). At each of the stages, students were invited to use ChatGPT (or a comparable GenAI tool) to support the organization, refinement, and clarification of their drafts. Students were explicitly instructed in using GenAI tools that generate content, organize, and summarize texts, rather than writing assistance or translation tools, such as Grammarly or DeepL. When submitting their assignments, students were asked to submit both pre- and post-AI versions of their work. By thus integrating GenAI, formative assessments are viewed as opportunities to promote deep sustained learning rather than merely to measure it (Yeo, 2023).

Throughout the duration of the course students were also instructed in how to evaluate and implement GenAI-generated texts ethically and responsibly. The instruction followed the five AI literacy framework principles adopted from Warschauer et al. (2023) (See *Appendix I* that illustrates sample teaching activities and learning tasks for each of the five stages):

- Students engaged in a reflective discussion of the functions and limitations of GenAI tools: What can they do with the tools? How to use them for learning purposes?
- Students learned how to navigate GenAI tools through specific communicative context-based tasks and how to match AI output to their learning needs.
- Students analysed sample prompts and practiced formulating a correct prompt to generate specific content to match these needs.
- Students corroborated the accuracy of AI-generated content by evaluating reliability and identifying inaccuracies in the ChatGPT-generated text.
- Students learned how to incorporate ChatGPT-generated text responsibly (i.e., properly citing and understanding how to use AI while complying with institutional policies for plagiarism and textual borrowing).

3.2 Participants

Research participants (n=13) were recruited among 50 students of two sections of the EAP course. Most participants (80 percent) were in their early to mid-twenties, enrolled in different programs of study, and came from diverse linguistic backgrounds with the majority speaking Cantonese (n=6), followed by Mandarin (n=2), Albanian (n=1), Arabic (n=1), Ilocano (n=1), Japanese (n=1), and Turkish (n=1).

3.3 Procedures

The post-instruction survey (See *Appendix II*) was designed to explore participants' experiences with and insights about using ChatGPT and similar GenAI tools for academic purposes. The survey included multiple choice, Likert scale, and open-ended questions focusing on the following key areas that emerged as significant in the research on GenAI implications in academia:

- Responsible use of GenAI
- The perceived impact of GenAI on language skills (e.g., writing, reading-comprehension, vocabulary, etc.)
- The perceived impact of GenAI on learning, critical thinking, and research skills

Descriptive statistics were implemented to analyse close-ended questions, while content-based thematic analysis was employed to interpret responses to open-ended questions.

4. Results

Most participants had some experience with using ChatGPT and/or similar GenAI tools both in the context of an EAP course and other courses with 38.5 percent rarely using the tool (once or twice per month), followed by 30.8 percent who used the tools once or twice per week, and 15.4 percent referring to ChatGPT on everyday basis. Students further explained that they used GenAI tools for the following learning purposes:

- Comprehend course concepts/obtain additional information on a course-related topic (69 percent)
- Summarize course readings (23 percent)
- Brainstorm ideas for an essay/presentation (23 percent)
- Write assignments (15.4 percent)
- Review materials and concepts for a test/exam (15.4 percent)
- Research sources for an essay/presentation (7.7 percent)
- Other (46 percent), i.e., composing emails or translating

When expanding on how they implemented GenAI in their course assignments, participants did not merely copy ChatGPT-generated text but engaged in analysis and critical reflection. To illustrate, 38.5 percent of students added their own perspective and information to ChatGPT's text, while 30.8 percent paraphrased ChatGPT's output. Another 30.8 percent of students used GenAI to check their grammar, punctuation, and style.

The survey offered several Likert scale questions that prompted participants to evaluate GenAI in terms of how it might have improved their language, learning, critical thinking, and research skills (See *Table I*).

Table 1.

GenAI and Academic Skills

The impact of ChatGPT and/or similar tools in academia	1 (Strongly disagree)	2 (Disagree)	3 (Neither agree nor disagree)	4 (Agree)	5 (Strongly agree)
	Percentage (%)				
ChatGPT (and/or similar tools) has improved my writing skills.	23.1	7.7	15.4	38.5	15.4
ChatGPT (and/or similar tools) has improved my reading-comprehension skills.	15.4	7.7	46.2	30.8	0
ChatGPT (and/or similar tools) has expanded my academic vocabulary.	15.4	15.4	30.8	15.4	23.1
ChatGPT (and/or similar tools) has taught me skills of academic research (e.g., searching for sources).	30.8	23.1	23.1	15.4	7.7
ChatGPT (and/or similar tools) has helped me understand the concepts and topics in our course.	30.8	7.7	23.1	15.4	23.1
ChatGPT (and/or similar tools) has enhanced my critical thinking.	30.8	23.1	23.1	15.4	7.7
ChatGPT (and/or similar tools) has given me a sense of confidence with my written work.	23.1	7.7	38.5	23.1	7.7

A few important observations have emerged from the participants' assessment of ChatGPT's impact. With a focus on the development of their language skills, most students agreed that GenAI had positively contributed to their writing skills; however, they were uncertain if their reading-comprehension and vocabulary were similarly affected. In addition, participants had mixed opinions as to whether ChatGPT and/or similar tools increased their confidence while writing. Most students also disagreed that GenAI tools were instrumental in developing their critical thinking and academic research skills. In fact, when expanding on their rating, participants commented on AI being detrimental to some extent, as evidenced by their responses. Here and henceforth, the original spelling, grammar, and punctuation have been preserved, *"Although it does help me get good ideas, with improved vocabulary, ChatGPT is also making us students a bit lazier and spending less time to do active thinking"* (Student comment); *"You may rely more on chatgpt, which will greatly reduce your creative and reasoning abilities"*. (Student comment).

Several open-ended questions of the survey targeted students' perspectives on the benefits and drawbacks of using GenAI in academia (See *Table 2* and *Table 3*). While participants recognized that GenAI might have facilitated brainstorming, revision, and time management practices, as well as improved their awareness of linguistic and structural conventions and understanding of the course concepts, they were also wary of becoming overly dependent on these tools. More specifically, they were concerned as to what extent they could trust information gained from AI sources, and if using GenAI would constitute as cheating in certain contexts.

Table 2.

Students' Perspectives on GenAI as a Learning Asset

Benefits of GenAI	Representative Student Comments
Generates and/or helps planning ideas	<p>"It help me to solving most questions in my education or academic content in any subject when I input."</p> <p>"Answers to points you can't think of or things you don't know"</p> <p>"It helps planning your ideas in several ways so you have significant options to choose from."</p>
Expands knowledge of linguistic and structural means of expressing ideas and facilitates revision	<p>"Help improving accuracy about grammar and structure"</p> <p>"It [Chat GPT] helps me re-structure my paragraphs to avoid any unnecessary or miscellaneous sentences and help make my assignments without grammar mistakes."</p> <p>"We often use repetitive vocabulary when we write, and this is a good time to ask chatgpt if they have any suggestions for revisions."</p>
Contributes to comprehension of the course resources and concepts	<p>"ChatGPT helps me to better understand with some vocabulary and terminology from my courses"</p> <p>"Chat GPT has helped me to understand in simpler terms the paragraphs or contexts written in vocabularies that I am unfamiliar with. It helps me to catch up with my other classmates by helping me comprehend about the material and suggest improvements of my work."</p>
Provides information	<p>"ChatGPT is helpful because it provides instant access to information"</p>
Enhances time management	<p>"Good accurate and more importantly in quick time"</p> <p>"I believe it could help you get ideas for a lot of things like how you can navigate time management and some advices for some events if you want or how you can organize your courses"</p>

Table 3.*Students' Perspectives on the Drawbacks of GenAI*

Drawbacks of GenAI	Representative Student Comments
Provides unreliable inaccurate information	<p>“ChatGPT sometimes makes up nonsense and gives some false sources of information.”</p> <p>“The thing that Chat GPT may not doing well is the output such as provide some wrong answers.”</p> <p>“less able to give accurate answers to things that require critical thinking”</p>
Leads to overreliance	<p>“Makes one's brain lazy and not challenge them think deeply and comprehend their thoughts, and express it.”</p> <p>“Sometimes you can't really retain memory if you get addicted to the AI and not really use your brain which could damage the power of learning.”</p>
Reinforces unethical academic practices	<p>“It makes students more likely to cheat because it is so easy to use and evolving every day”</p>
Lacks in-depth content	<p>“its [ChatGPT] writing can be generic, and it may miss context or discipline-specific nuances in complex topics”</p> <p>“Thoughts are solidified <...> he'll [ChatGPT] just answer you very broadly.”</p>
Requires skills to formulate a correct prompt	<p>“need to much details to get the right answer”</p> <p>“it [ChatGPT] may not answer the key points of my concern”</p>

To explore participants' emerging AI literacy skills, they were prompted to elaborate on their understanding of “responsible use” of GenAI. In response, students not only demonstrated awareness of academic honesty but also provided helpful guidelines on how to use GenAI ethically, as summarized in *Table 4*. They highlighted the importance of following institutional and course policies and necessity of re-claiming ownership of their learning (and writing). The latter entailed using GenAI as a learning/writing/search tool while also detecting false information.

Table 4.

Students' Perspectives on What It Means to Use GenAI Tools Responsibly

Responsible/Ethical Use of GenAI	Representative Student Comments
Check accuracy of the information	<p>“The information generated by chat gpt may be fabricated by AI. We need to determine the authenticity of the information to ensure we may use the data for creative purposes.”</p> <p>“The content generated by ChatGPT is not always right and it may make up stuffs it doesn't understand about.”</p>
Comply with the instructor's guidelines and university policies on the use of GenAI tools	<p>“Follow the school's requirements for homework and complete it on my own, using chatgpt only as an aid and not relying on it completely.”</p> <p>“To use it only if allowed by an academic instructor and utilize it to improve the flow of your own work, not entirely copying everything from it.”</p>
Take responsibility for one's learning	<p>“It means students need to be responsible to their academic career. For example, using Chat GPT as "Google" is acceptable but copy or rephrase the text generated by GPT is not a responsible way.”</p> <p>“Copy and paste every ideas will make yourself being lazy in academic level”</p>
Use GenAI as a supporting tool rather than a content generator	<p>“Use it as a help instead of copy and paste whatever it said <...> It is similar to Google Chrome but it shows you it directly rather than searching.”</p>

5. Discussion

The study has posed a question about how integrating ChatGPT and GenAI tools with similar functions into learning activities and writing practices impacts EAP students' AI literacy, defined after Warschauer et al. (2023) as being able to effectively communicate with and use GenAI tools for learning-related purposes while also recognizing its limitations and implications for academic integrity. The post-instruction survey provided insights into ELLs' emerging AI literacy by reviewing how they used ChatGPT. It is particularly worth noting that most students preferred adopting GenAI to enhance their understanding of course concepts, summarize resources, revise drafts, and/or brainstorm ideas. This preferred usage illustrates ELLs' awareness of GenAI as a tool to support their learning. Significantly fewer students admitted to implementing AI to research scholarly resources or generate content. As evidenced in the survey responses, the rationale behind students' reluctance to refer to GenAI for such purposes is that ELLs recognized certain limitations of AI in terms of ethical considerations and/or accuracy of its output, *“Too much reliance may lead to plagiarism. Chat GPT does not do well in giving precision and information on reliable sources such as journal articles”* (Student's comment).

This finding correlates with the studies by Barrot (2023), Kohnke et al. (2025), Song and Song (2023), who caution against relying on GenAI due to limited reliability of its output. Similarly, multiple researchers and educators address academic integrity in the context of responsible use of AI in academic coursework and discuss the importance of an AI literacy-

focused instructional approach that would teach students how to use GenAI (Bui & Tong, 2025; Warschauer et al., 2023; Yeo, 2023).

The survey results indicate that not only did students recognize limitations of GenAI in terms of potentially biased/inaccurate information, but they also shared other concerns that are common among educators. One of such concerns was overdependence on tech tools, which leads to a potential detrimental impact on critical thinking and active engagement with learning (Barrot, 2023; Cong-Lem et al., 2024; Kohnke et al., 2025; Polakova & Ivenz, 2024). Becoming “lazy” while acquiring and synthesizing academic knowledge is a prevalent trend in students’ responses to the open-ended survey questions.

As reflected in their feedback, students frequently expressed frustration with ChatGPT’s output, *“If you ask it to write for you it will go off-topic”* and *“need too much details to get the right answer”*. This finding suggests that ELLs may benefit from more extensive instruction targeted at formulating a correct prompt (Warschauer et al., 2023).

The study has also focused on how EAP students evaluate their experiences with learning activities and writing practices incorporating ChatGPT and GenAI tools with similar functions on their language learning, critical thinking, and research skills. Survey results demonstrate that students recognized their expanded vocabulary and increased awareness of linguistic, structural, and stylistic conventions, which corresponds to the findings in current literature (Kavanagh, 2023; Polakova & Ivenz, 2024; Silalahi, 2024; Song & Song, 2023).

“It let my contents be more fluent, such as revise the sentence structure, vocabulary to look more academic.” (Student comment)

Meanwhile, as evidenced by the descriptive statistics results from the survey, students were more critical of GenAI’s usefulness for their reading-comprehension, critical thinking, and research skills. They were also somewhat uncertain if engaging with ChatGPT and/or similar tools might have contributed to their confidence in their written work. The latter finding contrasts with studies (e.g., Lee & Davis, 2024; Xu et al., 2024) that report on how GenAI might have contributed to students’ learning and writing confidence.

Concurrently, in agreement with literature on GenAI’s positive impact on independent learning and time management (Du & Alm, 2024; Qu & Wu, 2024), students demonstrated active learning autonomy when discussing how to adapt ChatGPT and/or similar tools to their needs. For example, they remarked upon GenAI helping them manage time while working on routine tasks (e.g., searching for information and brainstorming ideas) and highlighted the importance of being responsible for their learning, as suggested by the following comment, *“Not relying on him [ChatGPT] completely, after all, it's still me who goes to school not chatgpt”* (Student comment).

The study demonstrated that, after experimenting with ChatGPT and similar tools through learning activities and assessment tasks, students expressed predominantly positive attitudes toward GenAI, echoing findings in existing literature. They perceived it as a tool that inspires ideas, assists with revising writing and understanding of course concepts, enhances awareness of grammar, structure, and vocabulary patterns in academic writing, and saves time. However, as consistent with current research, students also recognized GenAI’s limitations. These included concerns about inaccurate information, the danger of violating academic integrity when using GenAI tools unethically, and potential for overdependence, which could negatively impact their personal responsibility for learning. This tendency to approach GenAI through a critical lens serves as evidence of emergent AI literacy skills.

6. Conclusion

In recent years the emergence of GenAI has been perceived as both a cause for concern and a pedagogical learning opportunity by EAP educators. The potential for intentional and unintentional misuse of GPTs by ELLs is significant. GPTs can instantly generate human-like texts with - often - unsupported data and questionable citations, which raises serious concerns about plagiarism and cheating. In response, many postsecondary institutions have adapted their academic integrity policies to reflect the evolving GenAI use. Likewise, researchers and EAP practitioners caution against students' overreliance on AI as its inappropriate use not only impedes with academic honesty but also hinders the development of students' language, critical thinking, and research skills, thus significantly undermining their learning progress (Barrot, 2023; Cardon et al., 2023; Kohnke et al., 2025; Song & Song, 2023; Yeo, 2023). However, a more positive view of GenAI in education suggests that GenAI can be a learning tool that enhances EAL students' knowledge of linguistic and structural conventions and contributes to active learning engagement and motivation through immediate and customized feedback (Jo, 2024; Mahapatra, 2024; Polakova & Ivenz, 2024; Tajik & Tajik, 2024). By interacting with AI, students can focus on their unique needs and topics of interest (Du & Alm, 2024; Jo, 2024) and practice their academic language in a non-high stakes learning environment (Lee & Davis, 2024; Zhang et al., 2024). To address these concerns while utilizing GenAI's affordances, educators should support their students in developing AI literacy skills. Hence, while complying with academic integrity, EAP educators should guide students on how to use AI tools ethically in a way that is conducive rather than detrimental to their language learning (Avsheniuk et al., 2024; Ibrahim & Kirkpatrick, 2024; Warshauer et al., 2023; Zhou et al., 2024).

Our study stresses the importance of introducing an AI literacy framework (Warschauer et al., 2023) within the context of scaffolded learning and writing practices in an EAP course, and by examining students' post-instruction experiences with ChatGPT and similar tools. After deconstructing, evaluating, and incorporating Chat GPT-generated text, students became more adept at critiquing AI output and wary of being overly dependent on GenAI. While ELLs recognized that ChatGPT had contributed to enhancing their grammar, vocabulary, and/or style, revising their written work, brainstorming ideas, or gaining course-related knowledge, they were more sceptical as to its ability to provide accurate and reliable content. This highlights how, after being exposed to AI literacy instruction, students adopted a more conscious and responsible approach to engaging with GenAI.

Further pedagogical implications supported by this research study suggest integrating AI literacy in EAP curricula and expanding EAP course learning outcomes to include skills that are essential to engaging with GenAI, such as formulating a prompt and critiquing AI-generated content. To develop AI literacy, educators also need to scaffold and diversify learning and assessment tasks while prioritizing critical engagement with AI-generated texts (Bui & Tong, 2025; Yeo, 2023). The goal is to help students move from viewing AI as a content generator to utilizing it as a tool for language enhancement and idea generation. The AI literacy-enhanced curriculum will shift the focus from passive consumption of AI outputs to active reading, analysis, and synthesis, which are the skills central to academic success.

Educators will also benefit from building students' metacognitive awareness by introducing a reflective component (e.g., anonymous surveys or oral presentations on their assignment progress). Such tasks will encourage students to deliberate on their learning processes and make informed decisions about when and how to use GenAI effectively and responsibly.

7. Limitations

The present study has limitations that should be acknowledged. First, the research was conducted with a small student sample from two sections of an EAP course, which may limit the generalizability of the findings to a broader population. Since both the sample size and learning context are course-specific, the results may not be applicable to other educational settings. Second, the data sources consisted of student surveys, introducing the potential for subjectivity. Self-reported data may be influenced by individual perceptions or biases, which could impact the accuracy and reliability of the findings. Despite the potential limitations, student surveys remain valuable, as they provide an inside perspective into how students perceive and engage with GenAI. The survey findings thus capture ELLs' emerging AI literacy as it has evolved in response to pedagogical and learning tasks that incorporated GenAI.

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Appendices

Appendix I

Sample Teaching Activities and Learning Tasks

Stage 1. Understanding Affordances and Limitations of GenAI Tools

Objective: Identify students' perspectives and establish a common ground: How and for what purposes do they use ChatGPT and/or similar tools? Why do they find these tools helpful or flawed?

Sample Activity: Ask students to select a topic that they consider themselves to be an expert in (e.g., social media influencers, computer games, making sushi, etc.) and use ChatGPT to provide information on that topic. Encourage students to find flaws/inaccuracies in the AI-generated content by filling in the template (Vukovic, 2023).

ChatGPT-generated statement	Fact-checked answer supported by the link or reference to a credible resource	Conclusion: Fact or hallucination?

Stage 2. Navigating GenAI Tools

Objective: Match AI functions and output to learners' specific needs while accounting for the writing purpose, audience, and genre conventions

Sample Activity: Ask students to use ChatGPT to generate two emails on the same subject (e.g., requesting for an assignment extension). Students could prompt ChatGPT to generate an email using informal style and language and then re-generate this email using formal style. Students can be prompted to reflect on the differences in vocabulary, structure, and rhetorical conventions between the two versions of the email.

Stage 3. Formulating a Prompt

Objective: Identify features of an effective prompt (i.e. contextually and stylistically appropriate action verbs, appropriate amount of specifying information, etc.).

Sample Activity 1: Assign a topic and ask students to develop a series of prompts to learn about the topic following the “iterative scenario refinement” (Gewirtz, 2024).

Topic: Learning about Indigenous communities in Canada

Prompt 1: How do Indigenous communities in Canada live today?

Prompt 2: What can the government do to support Indigenous communities?

Prompt 3: What government programs are available to support Indigenous art?

Sample Activity 2: Ask students to work with AI to formulate questions that would facilitate learning about the course concepts. Instruct them to ask the same question about the topic/concept in different ways. With each question, they could consider changing:

- Level of specificity
- Style and formality
- Viewpoints and target audience (e.g., as everyday people, citizens, local representatives, technologists, companies, entrepreneurs, etc.)
- Purpose (e.g., describe, provide suggestions/solutions, explain and provide examples, etc.)

Encourage students to observe and reflect on similarities and differences in the content of the AI-generated responses and report on their observations in a query log (Eaton, 2023).

Stage 4. Corroborating Accuracy of AI-generated Output

Objective: Verify information provided by GenAI while raising awareness of hallucination and oversimplification

- **Activity:** Encourage students to engage critically with an AI-generated summary of a course reading.
- Provide a list of key themes or ask students to generate one based on the summary.
- Have students find and share direct quotes from the original text (with page or paragraph numbers) that correspond to each theme.
- Ask students to explain in their own words how each quote illustrates or supports the theme, encouraging interpretation and reflection.

Stage 5. Incorporating AI-generated Text Responsibly

Objective: Raise awareness of accountability and academic integrity when using GenAI

Activity: Invite students to use ChatGPT to respond to a course-related writing prompt and enhance the AI-generated response by:

- Questioning validity and/or biases and harmful stereotypes of AI-generated statements
- Adding missing arguments and/or evidence and reliable sources
- Incorporating different perspectives and/or examples to expand on a topic or support an argument
- Ensuring transparency in AI use by citing properly

Appendix II

Post-instruction Survey Questions

Instructions: The purpose of this survey is to explore your experience with and opinions about using ChatGPT (and/or comparable AI tools) in the EAP course. The research focuses on AI tools that generate content, organize, and summarize texts. This research does not include writing assistance or translation tools (e.g., Grammarly or DeepL). This is an opportunity for you to critically reflect on your learning and what impact ChatGPT (and/or similar tools) may have on your learning. The responses may be used for teaching, learning and educational research purposes (e.g. presentations at the conferences and academic publications). Your answers to the questions are anonymous, and your participation in this survey is voluntary.

1. How often do you use ChatGPT (and/or similar generative AI tools)?

[Likert scale]: 1(never) – 2 (rarely, one-two times per month) – 3 (sometimes, once per week) – 4 (often, a few times per week) - 5 (on daily basis)

2. Besides ChatGPT, is there any other AI tool with similar functions that you prefer? If so, why?
3. For what purposes do you use ChatGPT (and/or similar generative AI tools) most frequently?
4. If you use ChatGPT (and/or similar generative AI tools) to write assignments, how do you implement ChatGPT-generated text? Select one option only.
 - A. Copy/paste ChatGPT-generated text modifying a few words or sentences to better fit the assignment requirements
 - B. Read ChatGPT-generated text and then re-write it using my own words
 - C. Use selected excerpts of ChatGPT-generated text while adding my own perspective and information
 - D. Other [Please specify]
5. In your opinion, what are the benefits of using ChatGPT (and/or similar generative AI tools) in academia? What can ChatGPT (and/or similar generative AI tools) do well?
6. In your opinion, what are the drawbacks of using ChatGPT (and/or similar generative AI tools) in academia? What does ChatGPT (and/or similar generative AI tools) not do well?
7. In your opinion, what does the expression “using ChatGPT (and/or similar generative AI tools) responsibly” mean?
8. Rate the following statements on the scale from 1 (strongly disagree) to 5 (strongly agree):
 - ChatGPT (and/or similar generative AI tools) has improved my writing skills.
 - ChatGPT (and/or similar generative AI tools) has improved my reading-comprehension skills.
 - ChatGPT (and/or similar generative AI tools) has taught me skills of academic research.
 - ChatGPT (and/or similar generative AI tools) has expanded my academic vocabulary.
 - ChatGPT (and/or similar generative AI tools) has helped me understand the concepts and topics in the course.
 - ChatGPT (and/or similar generative AI tools) has enhanced my critical thinking.
 - ChatGPT (and/or similar generative AI tools) has given me a sense of confidence with my written work.
9. Would you like to expand on how ChatGPT (and/or similar generative AI tools) contributed to your learning experience (e.g. writing, academic vocabulary, organization, reading-comprehension, critical thinking, research, knowledge of course concepts, and/or any other skills)?