

Embedding ChatGPT and process writing in academic writing: Benefits, drawbacks, and writer cognition

Laura Gurney and Sheila Busteed

School of Education, University of Waikato, New Zealand

Email: laura.gurney@waikato.ac.nz; sheila.busteed@waikato.ac.nz

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This article explores the integration of generative artificial intelligence (GenAI) into the academic writing process. Guided by the principles of the academic literacies model, the authors embedded process writing alongside the use of ChatGPT-generated texts within an academic writing course. As part of the course's second module, students reflected on their reactions to using GenAI. This article shares the benefits and drawbacks of incorporating GenAI into the writing process from the students' perspectives, with a particular focus on how the students saw GenAI influencing their thought processes. We conclude with a discussion of the practical implications of our findings for other academic writing educators. This is the first half of a two-part article; we discuss additional themes resulting from this study's analysis in the companion paper, as well as an emerging framework inspired by the module's design.

Keywords: academic writing, generative artificial intelligence, cognition, process writing, higher education.

1. Introduction

With the release of OpenAI's ChatGPT in 2022 and the proliferation of similar technologies in ensuing years, the evolving implications of generative artificial intelligence (GenAI) have been discussed across professional communities. To briefly define the terminology, GenAI is characterised by its capacity to *generate* something new, drawing on its training databases (see Kalota, 2024). Concerns connected to GenAI range from shifting definitions of authorship and the reliability of generated content to the lack of transparency of the technology's design, databases, and use. Universities are acutely impacted by the availability of GenAI, and the higher education sector has been active in this discussion from the outset. As academic language educators, we have opted to contribute to this discussion by exploring the integration of GenAI into the academic writing process and the implications for student experiences and learning. When we first started planning this project in mid-2023, the initial discourse about the impact of GenAI on university teaching and learning was starting to develop. However, empirical studies on the integration of GenAI into the teaching and learning of the writing process as part of tertiary studies were not found at that time. In addition, it was not yet known how using GenAI texts might influence students' thinking during the different stages of their writing process, or the effects that GenAI could have on their learning of discipline-specific content. Therefore, we opted to address these gaps.

In the time since our project was designed, studies of similar focus have been published. Interest in how GenAI might form part of the writing process is beginning to be explored (e.g., Wang, 2025). Other recent research that explores student writing and AI includes Barrett and Pack (2023), Du (2024), Hutson et al. (2024), Kim et al. (2025), Nelson et al. (2025), Rodafinos (2025), Smerdon (2024), and van Niekerk et al. (2025). However, most research has been conducted within contexts where participants were learning English as an additional language. Adding a different perspective, our project focuses on an academic writing course at a New Zealand university where students have already achieved the English language competency required to study at a tertiary institution where English is the medium of instruction. This course attracts cohorts of students from across disciplines, as well as various cultural and linguistic backgrounds. The specific overlap of the academic writing process and GenAI, as addressed in our project, remains underrepresented in contemporary scholarship, especially within the context of New Zealand's higher education sector. The specific aims of our project are to better understand students' perspectives and reactions to writing with GenAI-produced content, and to share recommendations with other academic language educators concerning the challenges and opportunities we found. This paper and its companion (Busteed & Gurney, 2026) are relevant to academic literacies educators curious about GenAI, as well as disciplinary experts looking to use such technology as part of academic literacies development within their specific teaching and learning context.

1.1. Linking the academic literacies model and our project

Academic communication encompasses an array of reading and writing practices integral to successfully participating in higher education. Academic literacies are tied up with discipline-specific meaning making; the development of identity; and cultural, contextual, and social influences on learning (Lea & Street, 1998, 2006; Lillis & Scott, 2007; Sheridan, 2011). Academic language instruction is considered most effective when "developmental opportunities for learners are integrated and embedded within specific disciplinary contexts" (Maldoni, 2017, p. A105). Embedding academic literacies involves "creating opportunities to teach, learn, and reflect on language and literacy skills" (Busteed, 2025, p. 11). The reason for this integration, as Chanock et al. (2012) argued, is that, while some skills are generic, "most of what students need to understand is more complex and importantly variable from discipline to discipline" (p. 2).

Widening participation policies and the massification of higher education have led to increased student enrolments and the growing recognition that academic language and learning support is required across all institutions (Johnson et al., 2015). Our academic writing course, offered to students across undergraduate programmes, is designed and taught with these conditions in mind. The curriculum is built around the academic literacies model. Specifically, students are taught important principles of reading, research, and writing for the university level. Workshops provide opportunities to practice related skills as well as reflect on their learning and their identity as novice writers. Course assessment has built-in flexibility concerning topics, allowing students to focus on their disciplines of study. A recent update to one of the course's modules was driven by the changes observed in the higher education sector as prompted by the advent of GenAI.

In this paper, we explore learners' attitudes and reactions to GenAI in academic writing. Participants ($n = 35$) were undergraduate students enrolled in our academic writing course at the time of data gathering. The course is offered to first-year students across disciplines and involves four modules, which cover a broad suite of skills and processes associated with academic writing. We adjusted one of the modules to weave together the use of GenAI (in our case, OpenAI's ChatGPT) and a process writing approach to academic writing to enhance students' awareness of how the technology works and how it influences the writing of academic texts.

To redesign one of the course modules as part of this study, relevant literature was examined and factored into curriculum decisions. The academic literacies model served as a foundation for our project. In the following section, we briefly review literature concerning GenAI's capacity and limitations, focusing on how these relate to academia and writing. The literature review also

considers process writing, the implementation of this approach, and how it might intersect with GenAI.

2. Literature review

2.1. Generative artificial intelligence and higher education

GenAI has been making profound impacts across industries, and higher education is no exception. Institutions are rapidly trying to keep pace with the developing software, and discussions among educators have ranged from panic, to polemic, to considering what a measured approach to GenAI might look like. As will be discussed below, research to date has addressed both the potential opportunities as well as the pitfalls of working with GenAI. As research matures, the implications of the software are becoming better understood.

Earlier research focusing on GenAI and academic writing included reflections on practice (Pretorius, 2023), bibliographies (Wilson & Billam, 2023), and discussions concerning how the software could or should be used with students. For instance, Tai et al. (2023) discussed the potentials and limitations of the software for academic writing in relation to summarising content, improving vocabulary choices, providing structural guidance, editing drafts, providing feedback on writing, and translation, especially when the writer is an English language learner. These applications are dependent on the GenAI being prompted appropriately.

Part of the challenge of working with large language models such as ChatGPT is their capacity to produce polished, grammatically accurate responses to user prompts across a range of different languages. This can lead to responses that appear at first glance to be credible and convincing, particularly to readers who are not well versed in the content (Thorp, 2023). Likewise, van Dis et al. (2023) observed that inexperienced and inattentive readers “might be hoodwinked into accepting an AI-written paper by its beautiful, authoritative prose owing to the halo effect, a tendency to over-generalize from a few salient positive impressions” (p. 225). While the authors wrote this comment in the context of peer-reviewing manuscripts for publication, these are serious risks for students as they are still developing their foundational disciplinary knowledge. Some see this as a serious ethical issue and argue that it is the role of educators to teach students to navigate the software ethically and with awareness. This teaching may be done via modelling expectations, providing opportunities for students to develop critical thinking skills and make decisions that align with academic integrity regulations and ethical practice, and then reflecting on the influence of the GenAI-produced content on their learning (Crawford et al., 2023).

Recent research on GenAI and writing has begun to make broader observations concerning its impacts. For instance, Sanz-Tejeda et al. (2026) conducted a systematic review of 136 articles published between 2023-2025, addressing academic reading and writing in higher education, specifically within the social sciences, with the use of GenAI. They concluded that, while it creates some opportunities for enhanced support, GenAI necessitates a significant rethink of teaching and assessment. It also brings a host of ethical and practical challenges, including the potential for student dependency on the technology, the erosion of their metacognitive skills, concerns about plagiarism and academic integrity, and the effects that using GenAI may have on students’ developing author voices (Sanz-Tejeda et al., 2026; see also Gerlich, 2025). For an educator perspective, Edwards et al. (2026) surveyed 58 academics across disciplines in Australia concerning their understandings and practices related to GenAI and student writing. The participants placed high value on continuing to develop students’ academic writing in the age of GenAI and spent significant time revising assessment tasks in response to the continually evolving nature of GenAI programs in order to ensure students and not a GenAI tool did most of the writing. Significantly, Edwards et al. (2026) found that participant responses depended on the discipline of practice. In fields where critical thinking and creativity were seen as core components of the writing process, academics were less likely to see GenAI as valuable.

The proliferation and incorporation of GenAI into education and everyday life are pragmatic motivations for considering it in teaching. The importance of teaching critical GenAI literacy to equip learners with a better understanding of how GenAI functions is a growing concern. GenAI literacy includes not only how to use programs, but broader issues such as ethics, algorithmic bias, and accessibility (see Daher, 2025). For Ford et al. (2026), addressing credibility bias – the passive acceptance of GenAI-produced content without first verifying statements because the text appears authoritative – is a core aspect of critical GenAI literacy.

Ultimately, GenAI's integration into teaching and learning presents opportunities to develop students' GenAI literacy, but how GenAI is integrated comes down to what educators see as its role in their subject. Assessments can focus on “the product of learning” while neglecting “the importance of the learning process,” but GenAI has the potential to bridge this gap by supporting and highlighting different stages of learning (Pretorius, 2023, p. T3). Focusing on processes of learning, and of writing, can assist students to not only understand appropriate and useful ways of utilising GenAI, but to better grasp how texts are produced through iterative stages of planning, drafting, reflecting, and revising. To do this, we see benefit in explicitly framing writing instruction through a process writing approach.

2.2. A process writing approach to academic writing

Writing is a complex skill, comprising interconnected and iterative processes, within which lie thousands of decisions writers must make. While multiple pedagogical approaches have been crafted to teach this skill, process writing stands out as a well-established approach, having been formalised some decades ago and utilised in classrooms internationally (see Graham & Sandmel, 2011; Graham et al., 2015).

Although there is no singular definition of process writing, a core principle of this approach involves guiding students through stages of thinking about and producing their written work. Murray (2003) organised this process into three stages: *prewriting*, *writing* and *rewriting*. He described prewriting as everything that happens before a writer prepares a first draft; this stage is typically the longest, potentially taking up to 85% of the time it takes to prepare a text. Here, the writer must choose what to write about, who the audience will be, make notes, and jot down ideas. For academic writers, this stage involves engagement with literature to scope out an appropriate area. Next, the writing stage involves the production of a first draft, which can happen rather quickly if sufficient prewriting was done (Murray, 2003). Rewriting follows, when the writer reconsiders choices made, explores additional literature to improve the quality of research, edits the content and improves text cohesion, and then proofreads the text; together, these actions can take significantly longer than composing a first draft (Murray, 2003).

Process writing has been explored in research from several angles. Flower and Hayes' (1981) approach to process writing placed more emphasis on the cognitive side of writing, describing it as encompassing distinctive thinking processes that writers must learn to control as they compose texts. Graham and Sandmel (2011) described process writing as a cycle involving the creation of a writing plan followed by its implementation and review, during which numerous actions occur that underscore ownership of one's work and reflection on progress. Abdel Latif (2021), in a study involving learners of English, proposed seven components to the writing process: monitoring, searching for content, ideational planning, linguistic rehearsing, reviewing, transcribing, and revising. Process writing has been supported as an approach that can be used with learners of different levels. Barnard and Campbell (2005), reflecting on the incorporation of process writing into a university-level academic writing course, saw process writing as a beneficial activity for developing students' strategies and techniques. They also saw it as beneficial when done collaboratively.

Reading across this literature, fundamental to writing are the generation, identification, and organisation of ideas, which are then crafted and presented to readers in a way that aligns with the

author's intent. Flower and Hayes (1981) argued that effective writers seem to have greater conscious control over these processes than writers who struggle. In line with their views on process writing, we see the cognitive side of writing as encompassing such steps as scoping out potential topics, filtering through existing knowledge, brainstorming, drawing the boundaries around the content to be included in a text, and planning how to present it. In the context of undergraduate studies, novice writers are often exploring unfamiliar topics, so the comprehension and processing of new knowledge play a part. These ideas align with Murray's (2003) point that writing "is the process of discovery through language. ... Instead of teaching finished writing, we should teach unfinished writing, and glory in its unfinishedness. We work with language in action" (p. 4). In an era of quick responses through GenAI, this statement gains new meaning that educators can harness to convince students of the value of taking a more conscious approach to crafting texts.

While process writing is an approach backed by much evidence, it is not without critique. This is a point made in Graham and Sandmel's (2011) meta-review of 29 studies. It has been suggested that process writing provides insufficient support to students experiencing difficulty with writing, does not pay enough attention to foundational skills (e.g., spelling, sentence construction), and dedicates little time to explicitly teaching students strategies for how to actually do the writing processes, such as planning and revising (see Graham & Sandmel, 2011). Nonetheless, we see these potential weaknesses as connected with *how* a process writing approach is implemented, rather than being core to the approach itself. We see potential gaps in process writing as surmountable with the right amount of scaffolding – and potentially even strengthened through a touch of GenAI.

As part of teaching our academic writing course, we paired the use of ChatGPT-generated drafts with a process writing approach in one of the modules. We chose to have students work with GenAI-produced content in the module rather than have them use GenAI for proofreading or critical feedback. Working with GenAI-produced content is one of the riskier and more challenging uses of the software, particularly in academic contexts. However, we consider it reasonable for students to be curious about GenAI's capacities in this respect, and we wished to guide them through this experience in an open and reflective way. The module was designed to provide guidance on completing the writing process and to develop students' critical GenAI literacy, culminating in a related assessment. Its lessons included the use of model texts and examples, practice activities, and opportunities to reflect on the learning and writing experience – features that align with the academic literacies model, which informed the course design. Then we gathered written reflections on the participants' reactions to and interactions with GenAI as novice academic writers. Our analysis and discussion respond to the following exploratory research questions:

1. What are students' reactions to using GenAI as part of the writing process?
2. How might the use of GenAI affect students' thinking processes as part of academic writing?

The next section shares more details about how GenAI worked in concert with a process writing approach in the related module, thus allowing us to address these research questions in our study.

3. Methods

An intensive academic writing course delivered over four weeks in January-February 2024 served as the context for this qualitative study. This course is offered four times per year, including two intensive summer sessions, and all versions follow the same curriculum. The course attracts mostly school leavers plus some mature students returning to study after time in the workforce. Students typically enrol in the course as an elective to gain an understanding of how to meet academic writing expectations as applicable to the disciplines of study available at the university. The cohort of students enrolled in the 2024 summer iteration of the course served as the study's participants. In this section of the paper, we outline the course and the assessment connected to this study, as well as how data were gathered and analysed.

3.1. The academic writing course

As mentioned, the course takes an academic literacies approach to academic communication (Lea & Street, 1998; Sheridan, 2011), where we embed opportunities to consider communication within students' disciplines of specialisation. Given that most students are new to tertiary study, this involves helping them to understand that disciplinary differences exist and encouraging them to develop awareness of how disciplinary literacies manifest (via paying attention to text types, content, audiences, and so on). Further embedding of disciplinary literacies is achieved through the course's writing assignments, which are designed to provide students with the flexibility to choose from various prompts or approved topics. They are encouraged to select topics that align with their discipline of study.

The course is divided into four modules, each focusing on a different aspect of academic communication and associated academic skills. Some workshop time is devoted to students practicing their learning and working on writing assignments associated with the modules. The course begins at the foundational level by developing knowledge of disciplinary writing conventions and practicing formal writing skills (e.g., sentence structures, paragraphing, topic sentences, addressing common grammatical errors). Later modules focus on meeting expectations of common language functions and text types, plus developing skills for finding, reading, and integrating scholarly literature as part of source-based writing. Editing, proofreading, and the importance of academic integrity are woven into these lessons. All these components are tied to the course's learning outcomes, which acknowledge the different stages of the writing process.

We examined process writing and the role of GenAI in it during the second module, which focuses on language functions and the preparation of a writing portfolio. In this module, we draw on a systemic functional linguistics approach (see Halliday, 1978; Schleppegrell, 2004) to examine the ways that language can be used to achieve different outcomes in academic writing. We examined how to *explain* and *classify* information, *argue* a position, and *reflect* on one's learning experiences to achieve different purposes. During the module, students were also taught the stages of process writing, as outlined by Murray (2003), and provided with an overview of ChatGPT, how it works, and some well-recognised limitations of GenAI-produced text. The ChatGPT information was based on research by Thorp (2023) and van Dis et al. (2023), as well as our own analysis of ChatGPT-generated drafts produced using a group of prompts created for the writing portfolio assignment, and how these drafts aligned with conventions associated with academic writing that we taught. In addition, the module's lessons provided guidance on how to complete the writing portfolio, reviewed the assignment's instructions and marking criteria, made use of examples and model texts to clarify expectations, and provided students with opportunities to practice skills associated with the stages of process writing as relevant to the assignment. These included brainstorming and organising ideas, finding and acknowledging sources, critical reading, drafting a text to meet structural expectations, editing the content, and proofreading. The module was structured around the different stages of process writing (Murray, 2003), and learners were given opportunities to plan, draft, and revise their texts.

3.2. The assessment

In connection with this module, the students submitted a writing portfolio consisting of three short texts. The first of these texts was a classification text, the topic for which was determined by the students' selection of one of five writing prompts, each one associated with a different discipline of study. They had to critically read the corresponding ChatGPT-generated draft and then rewrite it. Students had to examine the content and structure, find sources to substantiate the information included, and then revise and strengthen the draft to make it their own. The portfolio's second text was an argumentative text on a different topic chosen from a list of approved options and then developed into an arguable position. The second text had to be written without any use of GenAI (e.g., ChatGPT, Copilot, DeepSeek, Grammarly), although spelling and grammar checkers functioning as part of word processing software could be used. Students were encouraged to

follow the three stages of process writing in their usual order – starting with brainstorming, finding sources, taking notes, and planning, before iteratively drafting and refining the text. Therefore, the completion of these two texts provided students with the ability to compare experiences of following the process writing approach with and without content from GenAI.

As the final component of the writing portfolio, students completed reflective writing about their experiences with the two texts. Reflection has long been supported as a pathway to learning from experience; while we reflect naturally, becoming aware of the process helps us to harness reflection intentionally and gain greater control over it (Boyd & Fales, 1983). To give the student participants a frame for reflecting on their writing, we provided four prompts. The prompts were designed to focus their attention on the writing process and their use of GenAI, specifically the decision-making rather than the end-product of their writing (Guo, 2022). We aimed to support learners to turn their tacit thinking into explicit reflection, encouraging awareness of their thinking as a core part of writing. The prompts were as follows:

1. What are your reactions to learning the steps of process writing in class? How did you find each step?
2. How did you find the application of the process writing steps when completing the classification and argument texts?
3. What are your reactions to working with generative artificial intelligence (GenAI) in the workshops/online activities and when preparing the classification? What were some benefits and/or drawbacks of using GenAI for your academic work?
4. How likely are you to turn to process writing and/or GenAI for future writing assignments, where appropriate? Please provide detail to justify your response.

Students were encouraged to reflect honestly and openly about their experiences when composing this portion of the portfolio. The marking rubric's design ensured that grading was connected only with the depth and clarity of their reflections, not with the content or views expressed – a fact that was reiterated during the module's lessons.

3.3. Data and analysis

The project was granted ethics approval by the School of Education ethics committee at our university. This approval allowed for the collection of anonymised versions of the students' reflective writing, submitted as part of their writing portfolio. During the module's first lecture, students were provided information about the research project, informed of our intentions to use their reflective texts as sources of data, and given the opportunity to opt out of the research. To avoid ethical concerns, the markers were not informed of who opted out; this information was kept until the paper had concluded. The written reflections were then extracted and anonymised for analysis.

This qualitative study involved the thematic analysis of students' written reflections. A total of 35 written reflections, each comprising responses to the four prompts, were utilised in this study. Our analysis of the data was guided by approaches described by Braun and Clarke (2022) and Saldaña (2021). We completed an inductive coding process manually, maintaining analytic memos of our codes and initial analyses. This was done separately at first, and then we brought our analyses together for refinement. This means two cycles of coding were undertaken. As Saldaña (2021) wrote, the first cycle “is *analysis* – taking things apart,” and the second cycle “is *synthesis* – putting things together into new assemblages of meaning” (p. 6). Our coding cycles involved breaking the data down into codes, which were then organised into categories and refined into themes to form the findings. Analysis addressed students' attitudes and experiences of using GenAI, its role and influence on their academic work, and the use of the process writing approach.

By employing reflexive thematic analysis, we acknowledge that our role as teacher-researchers means we had a high level of involvement in the course. We also see this as an asset for this method (Braun & Clarke, 2022). Moreover, our method's validity and trustworthiness are

established through the iterative process of our analysis, involving two coders, and synthesis driven by intensive discussion between us (Saldaña, 2021). We reviewed each other's analytic memos and held several meetings during which they were discussed. This process facilitated refinement of our analyses and resulted in no disagreements of note. The synthesis cycle produced multiple themes grounded in the student voice. In what follows, we present themes related to our two research questions.

4. Results

The thematic analysis allowed us to examine the impacts of GenAI in an academic writing course, paired with a process writing approach. In alignment with the research questions, this section reports students' reflections on their academic writing and attitudes towards the inclusion of GenAI in a process-based approach. In addition, we present a prominent cognition-related theme evident in their reflections. Finally, we consider the overlap of the two research questions as evident in the data. Throughout, our themes are supported by key words/phrases (appearing in italics) and quotations taken from the written reflections, thus anchoring our findings in the student voice. All excerpts are presented as they were submitted by participants, with no adjustments to expression made unless indicated. Individual student participants are identified by a randomly assigned number (S1-S35).

4.1. Process writing's power to boost efficiency, quality, and confidence

We begin with students' reflections on the process writing approach. The data indicate that they found the process writing approach *helpful* and *useful*, and that it made the academic writing tasks *easier*. Participants linked their positive attitudes and reactions to process writing to its *systematic approach*, stating its logical stages helped them work more efficiently. S19's commentary represents this theme: the steps were "*easy to follow*," which helped "*reduce the complexity*" associated with "*writing every type of writing*" and allowed them to complete "*logical and well-written*" texts. Likewise, S27 wrote that "*going through the stages was more efficient and easier because the steps served as my compass*." Some students identified a particular stage, explaining how it proved integral to their overall writing process when working on the assessment.

Our analysis of students' reflections also indicates that learning and applying process writing improved the organisation and overall quality of their work, thus having a positive effect on the final product. Illustrating this point, S23 wrote that learning about process writing and the *correct structure* to employ in academic texts "*has resulted in significant improvements in my writing*." S17 also connected process writing to developing a text's structure, which "*helped me to get my points across better*."

Following the stages of process writing reportedly boosted confidence and helped to reduce stress levels among some participants. For example, S16 wrote, "*I gained confidence*" while practicing the approach in the workshops, and S3 *appreciated* going through the stages and described process writing as "*a calming process*." Altogether, learning to follow this approach to academic writing as part of the new module proved to have numerous benefits for nearly all participants.

A few students expressed negative attitudes towards process writing. Their comments mostly focused on a specific step they found difficult. However, such remarks were usually paired with positive comments. A quote from S23 provides an example:

Personally, the prewriting stage of the process was the most challenging aspect, particularly given the overwhelming amount of academic literature that I needed to make sense of. After the information was sourced, however, the writing and rewriting aspects proved to be somewhat enjoyable. The finished product resulted in an overall greater sense of satisfaction.

On the whole, the data indicate that students had positive attitudes towards following a process-based approach to academic writing and are likely to continue this practice in the future.

4.2. GenAI as a starting point and model

Using GenAI as part of the writing process certainly has advantages, strengths and benefits, according to students. The most prominent theme that arose in students' reflections was the idea that GenAI provides a *starting point* to work with, rather than having to face a blank page. They noted that ChatGPT's strength was its ability to aid the prewriting stage of academic writing by providing that starting place from which they could continue, and that the ChatGPT-generated drafts used in the assessment gave students some ideas, inspiration, and a brief understanding of the topic. For example, S16 described ChatGPT as providing a "*good kickstart*" to give them some ideas, while S9 mentioned that it "*gave clear inspiration on what to write about within the paragraphs.*" S10 noted that the ChatGPT-generated drafts laid the foundation for their writing, helping them understand the topic and what to focus on. S23 drew attention to one of the drafts, which focused on an aspect of Māori and Pasifika culture, stating that its accuracy was "*an impressive example of what AI is capable of.*" Meanwhile, S34 was a bit more cautious, suggesting such drafts could provide useful "*background knowledge*" while acknowledging the importance of careful use of GenAI.

Students also framed the ChatGPT-generated drafts as a reliable model of formal academic language, including how to structure sentences. This capability was particularly appreciated by two students who use English as an additional language. S5 wrote, "*I have found the benefits of applying the new language features to my academic work, such as structure to sentences and use of resources from online tools.*" S19 reflected, "*my first language is Te Reo Māori and I find it constantly challenging to recognise language features and informal sentences.*" They saw benefit in using GenAI as a starting point in the future to assist with formal language.

4.3. Perceived reduction in cognitive load

Students' reflections on process writing, and GenAI's role in it, regularly addressed the cognitive side of writing. By this, we refer to the students' reflections on the *content* of their writing, which were prominent in the data. We draw attention to planning, brainstorming, scoping out potential topics, and drawing the boundaries around the content to be included in a text. These concern *what* to write about, broadly, rather than the specifics of refining and editing drafts.

Firstly, participants found that learning the stages of process writing helped to reduce their cognitive load while composing academic texts. In turn, knowing the stages provided guidance that effective writing is dependent on sufficient planning of the content. As S13 wrote, rather than trying to do everything at once, the stages of process writing were a useful reminder "*to plan and format my writing. It also reminds me to relax when writing my first draft of a text, knowing I will fix mistakes and edit it afterwards.*" S14 and S22 expressed similar perspectives, noting they saw the benefits of breaking academic writing down *into manageable chunks*. This strategy made things *easy to understand*, allowed them to focus on one thing at a time, and left them feeling *less overwhelmed*. The process writing approach gave students permission to spend time brainstorming, planning, making decisions on content, and rethinking those choices; this was helpful to S24, who previously "*thought that time spent not writing was time wasted.*" Overall, students saw this approach to academic writing as a scaffold, which alleviated *stress* by providing a sense of "*where and how to start*" (S27). Each of the stages of process writing were identified in various student reflections as helpful to the cognitive side of academic writing; therefore, the data indicate that learning this approach can benefit students' thinking processes.

Even though attitudes expressed towards process writing were mostly positive, learning its stages was challenging for some students at first. S13's comment about feeling *overwhelmed* because there was "*a lot to remember*" represents this initial reaction. However, several students reported that this difficulty eased as they practiced applying this approach to academic writing. As S18 commented, "*At the start, most of these in-depth descriptions of each part of the process were daunting; however, after consistent application, I found them easier as I wrote.*" Meanwhile, a couple of students noted having the opposite problem. They thought it was *easy* to learn about the

stages of process writing because they seemed *intuitive*, but these students ran into *roadblocks* when it came time to apply the learning.

Meanwhile, the pairing of process writing with GenAI affected students' thinking processes in ways that are starkly different from the practice of producing an academic text from scratch. Some students found that working with a ChatGPT-generated draft helped to reduce the work required to identify and scope a topic. Their comments focused on how GenAI helped them gain an understanding of their chosen topic and generate ideas for writing. Students mentioned ChatGPT's ability to provide a *large number* of ideas at a rate faster than they could hope to match – a feature that reduced the cognitive load associated with prewriting (i.e., delimiting a potential focus without having to read extensively). For instance, S16 explained that this made ChatGPT *useful* when “*brainstorming and bouncing around ideas at the start of an assignment.*” Similarly, S33 wrote that the software gave them “*key ideas to research further.*” S27 remarked that “*AI saves time in terms of brainstorming and outlining,*” while S22 went so far as to claim, “*I will always use AI to help me brainstorm and explain/break down [assignment] prompts.*”

Furthermore, the standardised voice of the software provided clarity and a sound model for writing. For example, S31 noted that the ChatGPT-generated drafts were easy to understand because they “*explained the points precisely and clearly,*” and S20 mentioned that such content “*made finding sources for the topic easier.*” Comments from S32 and S33 were similar; they noted that using the drafts as outlines allows students to focus on *phrasing, grammar, structure, and cohesiveness*. The outcome was that this *streamlined* the writing process for them. Overall, participants expressed positive attitudes towards offloading some of the work associated with planning and drafting by integrating GenAI into a process writing approach.

However, this positivity was not universally shared. Despite positive comments about GenAI reducing cognitive load, many students offered counterpoints. Some mentioned that working with GenAI negatively impacted their *critical thinking* and *brainstorming* capabilities. S30 remarked that using ChatGPT “*feels like someone else is doing the work for you and you are not exploring enough avenues to find the information yourself.*” To counter the potential danger of using ChatGPT, S14 prefers “*to do my own brainstorming that does not require technology rather than create a dependency.*”

There were also suggestions that GenAI's inclusion in early stages of the writing process can detract from students' learning. As S35 put it, the use of ChatGPT-generated drafts “*leaves the author lacking depth of knowledge.*” The software's rapid production of polished drafts makes it difficult for students to break apart the content, find sources to substantiate it, and add their own contributions and flavour. This difficulty is particularly the case for those who are new to the discipline being studied, and who are naturally less able to make independent judgements due to a lack of experience. Several comments from students expressed the need to first familiarise themselves with the content in the draft before being able to revise it to meet the assignment's expectations. For instance, S13 noted that “*editing ideas other than my own proved to be challenging,*” and S26 reported struggling with “*not having enough knowledge about the information and evidence that was given.*” Similarly, S14 experienced feeling unsure of the draft's *original meaning*, requiring them to interpret “*what a sentence was trying to say*” and grapple with rewriting “*something that I did not know the thinking behind.*” Therefore, where thinking processes are concerned, pairing process writing with GenAI led to a mixed reception among the participants.

4.4. Novice challenges in rewriting GenAI-produced texts

The student voice offered valuable insights into the effects of pairing GenAI with a process writing approach to academic writing. These include having to face numerous challenges unique to starting with a ChatGPT-generated draft versus writing from scratch. Several participants maintained that having to work with the drafts made it harder to apply the stages of process writing in

an effective manner. They described having to work through the process *backwards* when starting with the drafts.

In particular, students noted the importance of exercising caution with GenAI because using it as a starting point could complicate other stages in the writing process. For instance, S3 “*found it difficult to search for information and sources that agreed with the draft, made sense to me, and how I wanted the text to look.*” S33 also reported facing this challenge, stating “[I got] *stuck on certain phrases and found it difficult to reword the text.*” These struggles with verifying the content of ChatGPT-generated drafts through appropriate sources and rewriting them to feature their own voice are entwined with critical thinking and decision-making. Other comments also indicate a connection between GenAI and disruptions in planning, which then affected students’ ability to follow the process writing approach when rewriting their texts. A quote from S29 critiques the integration of GenAI into the process writing approach:

I do not think I will turn to AI in the future as it makes the writing process more difficult, it is as if you are doing it backwards. Instead of doing prewriting, then writing and then proofreading you are getting something already written and then you have to do prewriting, and then proofreading, which makes it confusing. So, if I ever do use AI in the future, it would be for things like brainstorming, or summarising texts I am using for sources. I would not use AI to write my actual assignments.

The pitfalls of the halo effect were also noted; students reflected on how the polished language of the ChatGPT-generated drafts made it difficult for them to critique the content. For some, the drafts appeared as finalised texts with no perceivable problems. As S26 wrote, this “*caused a major challenge [...] the ChatGPT text was perceived to be a well written text, though as I continued to read there were many detailed aspects of the assessment missing including references, correct grammar and comprehension.*” Furthermore, GenAI framed the tone of the texts in a way that made some students struggle to see how it could be changed. For example, S6 wrote, “*Looking at the way ChatGPT wrote the essay, made my mind only think of writing it the way I had already seen.*”

5. Discussion

Our study paired a process writing approach with GenAI to explore students’ reactions to the potential role of the technology in academic writing. The process writing approach presents writing as a series of interconnected and iterative stages, involving planning, brainstorming, drafting, editing, and proofreading. Students were required to work with ChatGPT-generated drafts and then craft them to meet academic requirements. It was expected that this would involve checking the content and providing references, reorganising the text into full paragraphs, potentially reordering and reshaping content to meet the writer’s preferences, and rewriting the text so it could be improved and presented in their own voice. In this section of the article, we discuss students’ reflections on working with GenAI and process writing, and we consider practical implications for educators working to develop students’ GenAI literacy.

All processes in writing involve thought and reflection, which are embedded and embodied (see Shapiro & Stolz, 2019), enacted by learners in interaction with others and their environment – including new and old technologies. The influences of GenAI on writer cognition, particularly in the initial stages of the writing process, came through in the data. Concerns raised by participants about the potential for GenAI to impede planning and thinking by setting the parameters for a piece of writing – especially in relation to prewriting and students’ acquisition of knowledge – expand on those expressed by Tai et al. (2023). These concerns also support Pretorius’ (2023) stance on the positive value of using GenAI in teaching. As mentioned earlier, Pretorius (2023) positioned GenAI as an opportunity and a potential tool for teaching, provided it is factored into the learning process. Students gaining awareness of the potentially negative influences on their

writing and learning is a crucial aspect of GenAI literacy. They need to know what the software cannot do – and how this will affect the thinking aspects of their writing process – as much as its capabilities. As our participants reflected, it can be challenging to think outside what the software provides, particularly for those who are new to an area of content or to formal academic writing in general.

Student comments suggest that the halo effect (van Dis et al., 2023) played a key role in this challenge. Their tendency to see GenAI-produced writing as *finished* suggests an association between the formality of the writing and the perceived strength of its content, as well as some level of trust in the source. This blind trust may be linked to an authority or credibility bias (see Ford et al., 2026), where GenAI is seen as a source of epistemic legitimacy and authority, is trusted, and is therefore difficult for learners to question. There are several layers to consider here, each of which is important for academic language educators to unpack. Firstly, GenAI tools *do* provide reliable content much of the time. Depending on a user's experiences, they may be interpreted as authoritative, albeit lacking in human understanding (Hauswald, 2025). However, GenAI also produces biased or inaccurate content, presented in a characteristically persuasive and confident tone (Slater & Humphries, 2025), so users need to be alert and informed enough to detect it. Critically, while users may think of GenAI as responsible, reflective, and functioning as a neutral search engine, it is none of these things (Simon, 2025).

An additional question for educators to address and users to consider is how our own epistemic agency may be diminished by GenAI use. The way it produces responses to prompts nudges users towards certain perspectives, shaping how beliefs are formed and making it difficult to reshape them (Coeckelbergh, 2026). Participant S6's comment that they could not come up with other ways of writing their text after seeing the ChatGPT-generated version exemplifies this point. This point is not an argument about misinformation or disinformation, but an acknowledgement that the processes and architectures within which GenAI programs operate make them seem authoritative, and they also make it more likely for users to receive certain types of information over others (Coeckelbergh, 2026). Indeed, recent empirical research has found that GenAI can reduce critical thinking skills and create dependencies, particularly for those who are heavier users of the software (Gerlich, 2025). These issues are key points for educators to unravel with students. Content needs to be assessed on its own merits, even if it sounds plausible. Students need to know how interacting with GenAI may shape their focus, delimit their scope of thought, and affect their thinking skills in potentially detrimental ways.

Our findings also suggest that student writers conceptualise the writing process in different ways. Some framed writing as linear instead of iterative and cyclical (Graham & Sandmel, 2011; Murray, 2003). They viewed GenAI as interrupting this linearity, hence their need to think about how to approach the steps *backwards*, as in S29's comment. However, other participants reflected that ChatGPT-generated drafts played a positive role in the prewriting stage, providing them with plenty of ideas. These comments mirror different approaches in the literature. For instance, Anson (2024) saw risks to skipping the steps of reading broadly, and gathering and synthesising evidence, but Pretorius (2023) supported AI's capacity to generate ideas in the initial stages of writing. It is possible that students will merge these approaches as they gain more experience, understanding that they do not handle all writing tasks in the same way; for example, where they have more experience with a topic, the brainstorming step may be somewhat faster, but if they are new to a field, it can take a lot longer. We would encourage reflexivity in how process writing is taught to foster writer self-awareness and discourage rigidity in relation to how the process unfolds.

The academic literacies model, where writing is framed as social, contested, and grounded within disciplines of practice, may prove highly useful alongside process writing. As flagged earlier, this model informed our academic writing course; however, we would argue that the introduction of GenAI strengthens the rationale for adopting it. From an academic literacies standpoint, writing

cannot be separated from its role as a communicative practice that iteratively develops knowledge within particular academic fields, such as the humanities, natural sciences, and so on. Lea and Street (1998) described reading and writing within disciplines as “central processes through which students learn new subjects and develop their knowledge about new areas of study” (p. 158). Becoming academically literate, therefore, involves understanding that knowledge is contestable. Understanding the writing that emerges from these fields necessitates some understanding of how knowledge is constructed and evaluated within them, meaning that epistemology and argumentation are introduced to students early. Writing is connected with “meaning-making and contestation around meaning rather than skills or deficits” (Lea & Street, 1998, p. 159). It can therefore not be described as good or bad without contextual parameters. The academic literacies model provides a counterpoint to the generic approach provided by large language models such as ChatGPT, encouraging students to pay attention to where, when, and who information comes from, and how it might differ from claims made in other fields. We support it as a way to allow students new to tertiary studies to develop their voices as novice writers at a time when the practice of academic writing is increasingly influenced by the availability of GenAI software.

6. Conclusion

We conducted a qualitative inquiry in a first-year academic writing course to explore the pairing of process writing and GenAI. Our thematic analysis of students’ written reflections yielded insights concerning how they reacted to GenAI and process writing. Through their reflections, the student voice has allowed us to draw particular attention to themes related to the cognitive side of academic writing. Overall, the data suggest that pairing GenAI with a process-based approach helped highlight for students the various challenges associated with academic writing, with or without the use of the new technology. The process writing approach, paired with reflective writing, appeared to prompt participants’ consideration of whether turning to new technology can be helpful in this regard or a hindrance, allowing them to engage with it more agentively.

The future of GenAI in higher education, particularly where academic writing is concerned, is still very much under discussion. To this dialogue, we have contributed evidence that students may hold both negative and positive attitudes towards GenAI, and that it can affect their writing in multiple ways. On this basis, we argue that black-and-white approaches to writing with GenAI at an institutional level are not realistic or helpful. Instead, students should learn how GenAI works, and what it can and cannot do. This approach allows them to make informed decisions about what role GenAI tools can and should serve in their writing practices (if any), contextualised within a specific approach to writing and within their disciplines of study. Incorporating GenAI into tertiary studies in this way could have positive flow-on effects for graduates as they begin to apply their writing skills in professional contexts, whether they choose to use GenAI or not.

Educators have a responsibility to employ informed pedagogical approaches so students can learn to interact effectively and ethically with technology and make decisions about its use. In this study, process writing proved to be a useful approach for structuring students’ use of ChatGPT and for understanding writing as a process rather than a product. While process writing is far from a new approach, the introduction of GenAI invigorates its relevance. It reminds educators that student writing is not simply about producing an end-product for assessment or acquiring the right skills but is one of the core means by which we negotiate knowledge and develop our stances within fields of study. If writing is to retain a central role in higher education, it needs a theoretical framing which does justice to what it is. As GenAI technologies continue to develop and expand, keeping in mind the purpose of writing instruction will be critical if we wish to retain the integrity of writing as a means by which students can learn and develop knowledge.

While this paper shares valuable insights from students’ perspectives on the role of GenAI in academic writing, our analysis yielded further themes that could not be shared here. In addition to the findings underscored in this paper, the students shared comments pertaining to ideas of

integrity and identity. Together, they have implications for the future of GenAI in higher education contexts. A companion article (Busteed & Gurney, 2026) offers a deep dive into these two themes. It also discusses a framework inspired by the design of our course's second module which could influence the integration of GenAI into teaching and learning at other higher education institutions. As a final comment, we wish to note that we have continued to use the revised module in our course and to read learners' reflections as part of the assignment. While we do not use them as research data, we have noticed that the reflections share similarities across cohorts and align quite closely with the themes presented here. These observations suggest to us that the approach may have some longevity over time and may continue to be beneficial for students.

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