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RECEIVED 21 April 2025

ACCEPTED 13 August 2025

PUBLISHED 16 September 2025

CITATION

MacArthur M, Minnillo S, Sperber L,
Whithaus C and Stillman N (2025) GIFT-AI:
teaching the game and leveling the field: Peer
and AI Review + Reflection in a business
writing course.
Front. Commun. 10:1615752.
doi: 10.3389/fcomm.2025.1615752

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GIFT-AI: teaching the game and leveling the field: Peer and AI Review + Reflection in a business writing course

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Responding to educators' concerns about how to address GenAI in professional writing assignments and courses, we present a tested pedagogical model that integrates GenAI feedback into writing curricula, with a particular focus on a Business Writing course with 34 students in 2024. The Peer and AI Review + Reflection (PAIRR) model follows this method: teachers scaffold major writing assignments so that students participate in peer review of a full draft, then elicit criteria-based feedback on the same draft from a chatbot. Next, students reflect on and critically assess both peer and chatbot-generated feedback and formulate revision plans. After revising, students compose a second reflection about how each kind of feedback influenced their revisions. In this paper, we motivate the PAIRR model, offer instructions for implementation, and share findings. We note the effectiveness of PAIRR in guiding students to critically interrogate AI output, build AI literacy, and prioritize their voices and writing goals while revising in response to peer and AI feedback. Addressing the particular challenges faced by multilingual international students in professional writing courses, we also showcase the affordances and utility of this model for these students. Finally, we discuss the applicability of PAIRR for a variety of writing courses.

KEYWORDS

artificial intelligence, writing feedback, business writing, peer review, multilingual writers, international students, professional writing, AI literacy

Introduction

The ubiquity of free LLM-powered chatbots presents new challenges and opportunities for workplace writing and for courses, like Business Writing, which prepare students for professional writing. In a large Microsoft study, [Lee et al. \(2025\)](#) find that higher confidence in AI is associated with lower critical thinking; over reliance on chatbots in writing may undermine the reliability of workplace documents. However, collaboration with chatbots may increase efficiency for routine writing tasks, from project updates to insurance claims. Meanwhile, employers continue to highly value writing and related skills. In the U.S., the 2025 National Association of Colleges and Employers Job Outlook Survey highly ranked “problem-solving” (88.3%), teamwork (81%), “communication skills (written)” (77.1%) and “communication skills (verbal)” (69.3%); “technical skills” (73.2%) must now include AI literacy ([Gray and Koncz, 2025](#)). Big Tech also signals the heightened importance of human communication skills with AI ([Kilpatrick, 2023](#)). To meet workforce needs, professional writing courses must build students' AI literacy and communication skills in tandem. Here we present a pedagogical model in service of this goal.

The course

Business Writing courses are well-positioned to prepare students for an AI-infused workplace, by giving students guided practice with AI in the writing process, and by teaching writing as a critical, high-level cognitive skill that involves problem-solving, audience awareness and genre analysis. The upper-division Business Writing course we discuss here is offered in face-to-face and hybrid formats over a 10-week term, at a public R1 university in the western U. S. Enrollment is limited to 25 students, typically majoring in management, economics, communications, statistics and related fields, preparing for careers in finance, management, accounting, human resources, public relations, marketing, grant writing, etc. MacArthur teaches the course with an emphasis on persuasion, workplace writing expectations and emerging workplace technologies. Through the example of this course, we share a curricular model called Peer and AI Review + Reflection (PAIRR). PAIRR combines peer and chatbot feedback on draft assignments, requiring students to critically assess and reflect on both kinds of feedback before revision.

Students begin the course by reflecting on their writing history and expectations for workplace writing and setting three goals for improving their writing. Students then complete five major assignments: (1) Job or Graduate/Professional School Application; (2) Internal Memo; (3) Feasibility Study; (4) Proposal; and (5) Five-minute Presentation (proposal pitch). Each one requires a rough draft, an audience analysis, formal peer review by 2–3 peers, and revision.

Course objectives

Students will understand:¹

- Differences between academic and professional writing
- Various writing situations professionals face
- Genres such as memos, letters, proposals, reports, emails and text messages
- Ethical, cultural, international, and political issues related to writing

Students will be able to:

- Analyze contexts, purposes, and audiences to determine appropriate writing choices
- Employ writing as a process, from researching a problem to organizing and drafting a document to reviewing, revising, and editing that document
- Develop an effective professional tone and style
- Employ rhetorical strategies for effective visual and document design
- Apply strategies for effective collaboration on large writing projects
- Demonstrate proficiency in computer-mediated communications

¹ Adapted from [University Writing Program, 2024](#).

Rationale

Students enroll in Business Writing with different levels of academic preparation, writing skills, fluency in English, work experience, and prior experience with AI, presenting challenges for educational equity and future career prospects.² The PAIRR model is designed to level the playing field by increasing writing support, writing skills and AI literacy, and to protect students' writerly agency—a sense of control over one's writing process, and metacognitive understanding of that process [Ahearn \(2001\)](#) – while also teaching all students the AI game: how to collaborate appropriately with AI.

A major concern with AI is its potential for hindering student agency, cognitive and metacognitive growth ([Darvishi et al., 2024](#); [Molenaar, 2022](#)). Many faculty and students are uncertain how to use chatbots appropriately in writing courses; AI policies vary substantially ([Dang and Wang, 2024](#)). In our view it is inappropriate for Business Writing students to simply use chatbots as they might in the workplace: as AI ghost writers, whose output they can more confidently assess and edit once they develop more expertise in their fields. Commercial chatbots were not developed for education, but to help already-trained experts work more efficiently ([Bender et al., 2021](#); [MacArthur, 2025](#)). Certainly we have observed students struggling to assess the quality and relevance of chatbot-generated drafts of unfamiliar or challenging genres, such as a feasibility study, proposal or cover letter. Yet students need appropriate practice to prepare to collaborate with AI in the workplace. We see providing this practice as an ethical imperative to promote educational equity. While underprepared students appear less likely to use AI and more likely to misuse AI if they do ([Zastudil et al., 2023](#)), “[s]tudents with educated parents ten[d] to be more likely to use [chatbots such as] ChatGPT” ([Rogers et al., 2024](#)). Offering a guided introduction to AI literacy in Business Writing can therefore level the playing field for all students.

Increasing writing support with AI is also a matter of educational equity. Research shows that ChatGPT, for instance, can provide high-quality feedback, comparable to human feedback, on students' drafts when criteria are used ([Steiss et al., 2024](#)). Research also shows that many undergraduates, including first-generation, low-income and multilingual writers, benefit from increased support in the writing process ([Ferris and Hedgcock, 2023](#)). Literacy in its original sense—“the ability to express ourselves and communicate using written language ... broadening access to knowledge”—lays the foundation for AI literacy, which “enables individuals to critically evaluate AI technologies [and] communicate and collaborate effectively with AI” ([Long and Magerko, 2020](#), p. 2). This is the case because

² The majority of students in 2024 identified as Asian or Pacific Islander (57%) and multilingual (69%). Six were international students, 26% were first-generation college students, and 48% received financial aid. A majority reported little prior use of generative AI (12% frequently, 2% very frequently). Surveys at the same university in writing courses in January and March 2025 yielded similar results, with slightly more in March reporting they very frequently used AI (6.1%).

writing prompts for AI, and critically evaluating AI-generated text, rely on high-level reading and writing skills, including audience awareness. Failing to cultivate AI literacy, then, can deepen the digital divide. In developing any type of digital literacy, students must learn through “experience [which] cannot be automated” (Yi Tenen, 2024). And so, to simultaneously build students’ AI literacy and increase support for writing processes, the PAIRR model guides students in limited use of chatbot feedback on drafts of Business Writing genres.

If chatbots can provide helpful feedback on student drafts, why require peer review as well? Because human relationships with peers and instructors motivate students (Furrer et al., 2014; Kirby and Thomas, 2022) and help them develop rhetorical awareness. For these and other reasons, peer review is a long-standing best practice in writing pedagogy (Anson et al., 2023). Many studies (e.g., Lundstrom and Baker, 2009) demonstrate that students can learn to provide effective criteria-based feedback, and they benefit from it, especially when peer review is well-scaffolded (Anson et al., 2023). Providing and responding to peer feedback promotes audience awareness and collaboration skills (Downs and Robertson, 2015). Thus AI feedback should be paired with peer review, a hybrid approach described by Byrd (2023) and Mayer (2024).

Any use of AI feedback in responding to student writing should require students to critically reflect on the feedback, to increase AI literacy and encourage learning transfer to other contexts, including the workplace (Yancey et al., 2014). PAIRR also gives students guided practice in assessing AI output in relation to their peers’ judgments, simulating future workplace collaboration. Typically students in writing courses also receive instructor feedback on revised drafts, further supporting their writing development. In this human-centered feedback process, with instructors, peers, and AI, the PAIRR model leads students to reflect on their writing from multiple perspectives. This helps students understand that human colleagues have access to, and can learn to articulate, features of their immediate rhetorical contexts that AI does not, even when AI is trained on discipline-specific discourse. In business, each organization has its own culture and norms of discourse, which constantly evolve to meet new challenges. The Business Writing course is designed to build students’ rhetorical awareness of audience-specific needs and knowledge, and the PAIRR model deepens that awareness in relation to AI.

Our initial 2024 study of PAIRR, in 10 courses with 654 students, including small professional writing and 3 large writing-intensive STEM courses, found strong evidence that the model supports writerly agency and AI literacy (Sperber et al., 2025). After participating, the majority of students (57.6%) preferred peer and AI feedback together. A smaller proportion (35.7%) preferred peer review alone, and just 6.7% preferred AI feedback alone. This suggests that the PAIRR model builds confidence in the utility of AI for supporting the writing process, while affirming the centrality of human feedback and audiences, so crucial to learning, human communication, and effective collaboration with AI. The PAIRR model is now being implemented at 8 public colleges and universities in California, through a 3-year grant project funded by the California Education Learning Lab. By sharing PAIRR as a curricular model, we seek to promote educational equity, improve writing skills and increase AI literacy.

How to implement PAIRR in a professional writing course

1. Incorporate PAIRR overview and AI guidelines in syllabi (see materials repository³)
2. Assign short readings about AI. Topics, chosen by the instructor, may include AI and cognition, ethics, bias, linguistic justice, LLM design and function, privacy, disciplinary applications, guidance on acknowledging AI use, etc.⁴ (See materials repository).
3. Require students to write a reflection on these readings and, ideally, discuss them in class. Note: Students often appreciate the chance to openly address AI.
4. Require students to complete peer review of draft assignments using assignment-specific criteria, such as a checklist or evaluation rubric. It is outside this article’s scope to offer thorough guidance on peer review; please see resources in the materials repository. Best practices include: providing strong models of peer review; motivating students with adequate credit for peer review (e.g., 10% of course grade); explaining how peer review functions in publishing and workplace writing; framing peer review as preparation for providing constructive criticism to colleagues; and discouraging grammatical comments, to encourage attention to higher-order concerns such as audience, use of evidence, and organization.
5. Choose a chatbot to use for feedback, and guide students in creating accounts and protecting their data and privacy (see Caltrider and MacDonald, 2024). At present, we recommend Claude, Gemini, Perplexity, ChatGPT, or DeepSeek.
6. Guide students to prompt the chatbot for feedback on their drafts, assigning a supportive peer reviewer role to the chatbot and using assignment-specific criteria, such as a checklist or evaluation rubric. (See materials repository for detailed instructions).
7. Require students to reflect on and compare peer and AI feedback, consider what advice they want to take, and develop a revision plan. Remind them that chatbots can make mistakes. Students should assess whether feedback is appropriate for their audience, goals and writing voice. (See materials repository for detailed instructions).

Impact and implications

To illustrate the utility of the PAIRR model in professional writing courses, here we present and interpret key findings from the Business Writing course, including from multilingual international students. These findings are consistent with our larger study (Sperber et al., 2025). In thematic coding of a representative sample of 131 student

³ All of our additional materials have been references in the text at our GitHub repository’s link of <https://github.com/sminnillo/PAIRR>.

⁴ At the start of term, students learn about PAIRR and opt in or out. Those who opt out only do peer review on drafts. For AI review, we used ChatGPT in 2024, with privacy settings activated, and are now experimenting with Claude and MyEssayFeedback.ai.

reflections on peer and AI feedback (of the total of 654), we followed Saldaña, 2021 in MaxQDA. The larger study found that when peers and AI offered similar feedback, students found this reassuring, and when the feedback differed, each source often provided complementary advice. Students perceived peers to better understand assignment and course context, while they perceived AI feedback as constructive and actionable. One quarter of coded reflections expressed skepticism about or noted inaccuracies in AI feedback, a sign of developing AI literacy.

Focusing on the Business Writing Course, we begin with trends and comments from the Job or Graduate/Professional School Application assignment, from 34 students.⁵ Overall, students described AI feedback as valuable for both high-order and sentence-level comments, but sometimes found it too general or “surface-level.” They also appreciated peers’ contextual and situational knowledge. One student commented: “my peers looked at it from the employer’s perspective ... ChatGPT did not do that as much—it more tried to match things between the job listing and my writing.” Another appreciated that “[my peer gave] good advice from someone else pursuing a similar career ... another perspective I have not thought about before.... while [the chatbot] has access to tons of information, it does not have ... gray area understanding.”

Students also began to recognize the distinct skills necessary to prompting a chatbot vs. to communicating with peers: “I feel more like I am a teacher giving instructions and rubrics to ChatGPT in order to get a proper response. This is completely different when I collaborate with my teammates on our peer review.” Interestingly, this student’s comment resonates with computer scientist Matt Welsh’s view of the near future: “the [computer science] field will look like less of an engineering endeavor and more of an educational one; that is, *how to best educate the machine* [his italics]” (Welsh, 2023). Learning how to prompt AI effectively, while also practicing peer collaboration, offers excellent preparation for workplace writing today.

Crucially, students did not simply trust AI’s fluent prose and authoritative tone, a hazard for entry-level workers compared to expert, seasoned professionals (Crowston and Bolici, 2025). One student wrote:

I view [ChatGPT] as my personal assistant with unparalleled information on how to do things, but [it] does not always tell the truth, but certainly sounds like it does. ... I felt more comfortable receiving its advice when I specifically told it what I’m doing, how I’m being graded, and what advice to give me.

When students noticed AI feedback did not match their purpose, they were building AI literacy. One student wrote, “I approached the AI feedback with caution ... ma[king] sure there were no errors.” Another noted, “I agree with most of the feedback ... (except where the AI was just, wrong).”

A few students expressed concern about preserving their own voices with AI, which pertains to linguistic justice and equity (Thompson and Pokhrel, 2024). One student wrote:

The only ... feedback ... I did not agree with was ... [ChatGPT] want[ing] me to change certain aspects of my writing ... turning into ChatGPT’s voice rather than my own... [T]he peer review ... was not enough to change my voice I learned that ChatGPT is ... very helpful for improving ... technical writing skills, however it can sometimes take over your writing and make it seem not like your own.

Concerns about AI’s impact on students’ developing voices matter for everyone, especially multilingual and minoritized students who may lack confidence in their writing (Wang, 2024; Tan et al., 2025).

Business Writing courses often enroll significant numbers of multilingual international students, who encounter particular challenges and opportunities with AI. Due to feelings of linguistic inadequacy and pressure to conform to standard language norms (Warschauer et al., 2023; Zheng, 2025), they may be more likely to misuse AI in their writing processes. These feelings intersect with self-efficacy (a sense of one’s ability to complete a task); students with lower self-efficacy tend to use AI more (Rodríguez-Ruiz et al., 2025). While it is unclear whether AI detectors are more likely to incorrectly flag multilingual students’ writing as AI-generated (Jiang et al., 2024; Liang et al., 2023), instructors sometimes exhibit racial-linguistic ideologies that imagine multilingual international students as “morally deficient,” leading to anxiety-producing accusations of AI plagiarism (Zheng, 2025).

Multilingual international students may also lack knowledge of U.S. norms regarding source use (Du and Tate, 2024), leading to unintentional violations of academic integrity policies. A range of AI policies exist at a single university (Minnillo et al., 2024), which may further confuse students. The PAIRR model addresses these challenges by providing clarity on acceptable and unacceptable AI uses in a writing course,⁶ and positioning AI neither as a tool to “correct” students’ “deficient” writing nor as a get-out-of-writing-free card, but rather as an additional, supportive perspective on student writing that does not replace human feedback.

Next we share perspectives from three multilingual international students in the Business Writing course: Pengxi⁷, a third-year student of Chinese nationality majoring in Mathematics and Economics; Haoyu, a fourth-year student of Chinese nationality majoring in Business; and Thuy, a third-year student of Vietnamese nationality also majoring in Business.

In the reflection on AI readings, they expressed varied attitudes and insights about AI and their own writing. Pengxi, who had high self-efficacy about writing (according to our pre-intervention survey), expressed awareness of AI’s risks, noting:

I think using ai [sic] ... will greatly reduce my control over the language... everyone has a different writing style and

⁵ Total enrollment was 46 in two sections. Ten students opted out of PAIRR. Two did not submit a complete assignment. One dropped the course after sharing that she had not written a paper since the release of ChatGPT.

⁶ See recommended statements on AI use for syllabi in our materials repository: <https://github.com/sminnillo/PAIRR>.

⁷ All names are pseudonyms.

understanding of the material, but the very single writing style of ai will erase this unique writing style.... ai is very helpful ... when it checks articles and gives feedback, but if it just wants to finish writing ... I think it is a very bad behavior for learning.

Demonstrating high self-efficacy, Pengxi spoke frequently in class discussions, showing little self-consciousness about his idiolect, and consistently performed well on assignments.

Haoyu indicated the lowest self-efficacy as a writer of the three students (on the pre-intervention survey), and very rarely spoke in class at first. In the AI reading reflection, he wrote, “I am excited to get support and assistance from generative AI in my own writing, but I also worry about college policies on academic integrity (even if I do not intend to plagiarize).” He mentioned that AI would primarily help narrow topics and “improve our efficiency in writing.”

In fact, for the first assignment, Haoyu over relied on AI, using it to summarize his work experience vaguely, in bland AI prose. Rather than reporting the problem as AI plagiarism, MacArthur spoke with the student in office hours, emphasizing the value of his developing voice and unique experience to employers and graduate programs, and the opportunity the small course provided for more practice speaking English. Acknowledging that he had assumed AI sounded “better” than him, Haoyu rewrote the assignment for a new grade and began to speak more with classmates. Offering this approach—with a supportive conversation and a rewrite option—can be invaluable for students who underestimate their own voices, and help them avoid future AI misuse and academic penalties.

Thuy, a student with high self-efficacy, was a first-generation, high achieving (4.0 GPA) student who rarely talked in class at first and later spoke up often. She moved to the U.S. and began learning English 4 years prior to the course. Thuy reported that she used AI “very frequently” at the course’s start. In the reading reflection, she explained:

the rise of AI has changed me completely.... writing tasks became efficient and less intimidating ... when I needed to draft a quick email or a parking ticket appeal. However, I soon realized if I keep relying on AI, my writing skills will be dulled by its convenience... Understanding this, I am now more mindful of my use of AI and approach it with greater caution.

As students grapple with AI’s benefits and risks for learning, Thuy’s reflection illustrates the relevance of discussing generative AI in the classroom.

While these three students held different attitudes toward AI, they shared similar responses to receiving peer and AI feedback in the Business Writing course. Reassuringly, all three critically evaluated AI feedback. For example, Haoyu disagreed with ChatGPT’s suggestion to add more reasons and solutions to his internal memo, justified why he did not adopt that suggestion, and commented that “the peer review will be more helpful than the chat.” Thuy criticized ChatGPT’s feedback on the Feasibility Study as “too general and sometimes does not make sense.” These students also often recognized agreement between peer and ChatGPT feedback. For instance, both peers and AI indicated that Haoyu needed to include stronger evidence in his Feasibility

Study, and that Pengxi should add more examples and details in his Job Application. This pattern of agreement is consistent with our larger sample, underscoring the benefits of eliciting and evaluating multiple sources of feedback in the PAIRR model. When AI and peer reviewers agree, it appears to reassure students (Sperber et al., 2025).

Pengxi, Haoyu, and Thuy explicitly appreciated sentence-level feedback, on areas including verb tense, word choice, concision, sentence order, which they received from both peers and AI. Notably, in their reflections, these students registered understanding of the sentence-level concerns in question. Rather than prompting AI to revise their writing and copy-pasting its revision, they reflected on these comments before making changes, demonstrating writerly agency. Through their experience, we see evidence that the PAIRR model can encourage students to maintain their voice in their writing and support learning and revision through thoughtful response to feedback (Ferris and Hedgcock, 2023; Sperber et al., 2025). Our findings in the Business Writing course demonstrate the efficacy of the PAIRR model for writing classes that serve multilingual international students.

Conclusion

This is a crucial moment in adapting to AI. Many educators and educational technology companies are rapidly developing and marketing AI tools for writing feedback, and some, like OpenAI’s ChatGPT Edu, have secured big contracts with universities (The California State University, 2025). Some tools in development clearly intend to promote educational equity and writing support (rather than boost profits or cut instructional costs); examples include Warschauer et al.’s PapyrusAI and August and Gallagher’s “non-directive AI writing tool” project (Warschauer et al., 2025; August and Gallagher, 2025). Regardless of which AI tools student are using, we must re-center the human-in-the-loop in writing instruction—because strong relationships with peers and instructors motivate students to learn, and because writing is human communication.

PAIRR provides a simple, evidence-based model that can be used with any chatbot, to guide students in using AI appropriately, in a human-centered writing process. Grounded in best practices in writing studies, PAIRR may help shift student use of AI as a ghost writer—in violation of academic integrity and to the detriment of their own learning—to AI as a machine tutor, not a teacher replacement. In applying PAIRR in Business Writing, we have seen that this model helps to level the playing field. At the same time, it teaches the game of AI collaboration while supporting students’ voices, writing processes, and understanding of academic integrity.

Data availability statement

The datasets presented in this article are not readily available because of our local IRB guidelines. Requests to access the datasets should be directed to Sophia Minnillo, smminnillo@ucdavis.edu.

Ethics statement

The studies involving humans were approved by the Institutional Review Board of University of California, Davis. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

MM: Writing – original draft, Writing – review & editing. SM: Writing – original draft, Writing – review & editing. LS: Writing – original draft, Writing – review & editing. CW: Writing – review & editing. NS: Writing – review & editing.

Funding

The author(s) declare that financial support was received for the research and/or publication of this article. The Association for Writing Across the Curriculum awarded this project a Research Initiative Grant to support data analysis.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declare that no Gen AI was used in the creation of this manuscript.

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Available online at: <https://www.nacweb.org/about-us/press/the-attributes-employers-look-for-on-new-grad-resumes-and-how-to-showcase-them> (Accessed: 26 March 2025).

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