

## Studies in Second Language Learning and Teaching

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SSLT 16 (3). 2026. 513-540. Published online: 31.08.2026

<https://doi.org/10.14746/ssl.53237>

<http://pressto.amu.edu.pl/index.php/ssl>

### *Teaming with GenAI for multimodal feedback literacy development: A vision for L2 writing teachers*

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#### Abstract

At a time when second language (L2) learners can receive automated feedback on their writing from generative artificial intelligence (GenAI), it is imperative to re-envision the role of L2 writing teachers in the feedback process. In this position paper, we argue that multimodal feedback literacy for L2 writing teachers in this GenAI-ubiquitous world requires them to engage in strategic teaming with GenAI to provide feedback on both language use and multimodal synergy, and to orchestrate multiple feedback-giving modes into coherent feedback ensembles to facilitate optimal feedback uptake among diverse learners. Grounded in the social semiotic tradition of multimodality, we challenge the conventional understanding of feedback communication as language-centered and advocate an alternative conceptualization of feedback communication as

multimodal. We argue against the narrow conceptualization of GenAI as a tool for generating linguistic feedback and contend that feedback automation through GenAI would dehumanize the learning potential of feedback and undermine the agency of L2 writing teachers as feedback designers. We then, in addition to the GenAI-led automation and human-led assistant models of using GenAI, present three pathways for L2 writing teachers to team up with GenAI for multimodal feedback design and multimodal feedback literacy development.

*Keywords:* automated feedback; teaming; GenAI; multimodal feedback literacy; L2 writing teachers

## 1. Introduction

At a time when second language (L2) learners can receive timely, automated feedback on their writing from generative artificial intelligence (GenAI), it is imperative to re-envision the role of L2 writing teachers in relation to GenAI in the feedback process. This is because in public discourse, the GenAI boom has triggered an existential crisis for many L2 writing teachers, whose professional identity as feedback providers is becoming vulnerable to GenAI, if not replaceable by it. Against this backdrop, in this position paper, we argue that for L2 writing teachers to stay productive and take control of feedback practice in this GenAI-ubiquitous world, they should go beyond conventional language-centric feedback by engaging in strategic teaming with GenAI and developing multimodal feedback literacy, which has been defined as “the literacy to design multimodal feedback through interweaving multiple feedback-giving modes (including the linguistic, visual, aural, and spatial modes)” (Jiang et al., 2024, p. 1484). Previous research suggests that multimodal feedback literacy is an important aspect of teacher feedback literacy, as giving multimodal feedback (i.e., feedback presented or given through multiple modes) is pivotal in facilitating optimal feedback uptake and L2 writing development among diverse learners (Bakla, 2020; Jiang et al., 2024). However, despite a growing number of studies on GenAI and teacher feedback (e.g., Guo & Wang, 2024; Lin & Crosthwaite, 2024), the nature of feedback seems to be assumed to be linguistic-centric rather than multimodal. Although GenAI is able to generate feedback on different aspects of writing, such as content, organization, and genre, in practice, it is often reduced to a digital tool for automated error correction, rather than being used to augment feedback from linguistic to multimodal forms for maximal student engagement, let alone to develop L2 writing teachers’ multimodal feedback literacy.

To address such challenges, this paper aims to reconceptualize feedback communication as multimodal and to advocate for a strategic teaming model between L2 writing teachers and GenAI. Grounded in the social semiotic tradition

of multimodality (Kress, 2010), we first challenge feedback communication as merely language-centric and conceptualize it as multimodal. We then problematize the prevalent but narrow conceptualization of GenAI as a tool for automating feedback and suggest that feedback automation would dehumanize the learning potential of feedback, with a negative impact on L2 writing teachers' agency as feedback designers. We distance ourselves from earlier research that takes GenAI as a teacher surrogate and present three pathways for teaming with GenAI for multimodal feedback literacy development. The first pathway concerns the expansion of written feedback in the linguistic mode to feedback in multiple modes. The second concerns the expansion of feedback from how language alone is used to how language is used in combination with other semiotic resources. The third is about personalized multimodal behavioral feedback on the process of L2 writing (and multimodal composing) based on writing/composing engagement analytics. We suggest a need to expand the previous definition of multimodal feedback literacy (Jiang et al., 2024) from the literacy to present feedback in multiple feedback-giving modes (defined as socially and culturally produced resources for feedback communication) to include the literacy to provide feedback on multimodal synergy (defined as how multiple modes are remixed) in multimodal composing. Finally, we call attention to the need to educate L2 writing teachers about the affordances of multimodal feedback-giving modes that are rendered accessible and possible by GenAI, as well as to the need to develop multimodal feedback literacy for innovative feedback practices in the GenAI era.

## 2. Multimodal feedback literacy in L2 writing: Against the monomodal and monolingual bias

For many L2 writing teachers, feedback is mainly about and communicated through words. When a student cannot use words in the target L2 properly, teachers then give more words in the form of written corrective feedback, comments, elaborations, or suggestions. Underlying the language-centric feedback practice is a deeply rooted monomodal bias. This monomodal bias often manifests itself in two ways. First, given that most assignments are monomodal, there has been an exclusive focus on the linguistic mode (e.g., grammar, vocabulary, syntax) as the feedback target, with limited attention to the other modes that are part of academic writing (e.g., paragraph structure, use of hyperlinks) or multimodal composing (e.g., soundtrack, visual-word relationships). Despite the fact that contemporary writing is increasingly multimodal, and digital and many scholars (e.g., Belcher, 2023; Elola et al., 2025) have argued for a need to reconceptualize writing as digital multimodal composing, many L2 writing teachers still confine their feedback to

writing in the linguistic mode only (Elola & Oskoz, 2022). Prior studies show that L2 writing teachers either feel unprepared or believe it is beyond their professional identity to provide feedback on non-linguistic modes (and the multimodal orchestration of multiple modes) in students' multimodal compositions (Yi & Angay-Crowder, 2016). This monomodal bias is misaligned with changing composing practices, which are increasingly multimodal and mediated by various GenAI technologies (Elola & Oskoz, 2022).

Second, there is also an exclusive use of the linguistic mode in either written or oral form to give or present feedback to students, ignoring how feedback in the linguistic mode may be re-represented, combined, and complemented with other modes such as the visual and the aural. Despite research on the benefits of multimodal feedback for L2 writing development, many teachers are still reluctant to give multimodal feedback for reasons such as limited teacher training, increased demands on digital competence, and concerns over increased teacher workloads (Cunningham & Link, 2021). In practice, the monomodal bias in feedback communication continues to prevail, and many teachers still rely on themselves or GenAI to generate dense written commentary with text-based suggestions or error-correction symbols (Han & Li, 2024). This bias also explains why some L2 writing teachers may feel their authority as feedback providers is challenged by GenAI, which is often uncritically assumed to have greater authority when generating native-like feedback (Gao, 2024). This feeling, however, ignores not only the homogeneous nature of GenAI in perpetuating and reproducing standardized language use (Jeon et al., 2025), but also the translanguaging nature of students' use of GenAI in their L2 writing, as L2 students often draw upon their multilingual and multimodal repertoires to make better use of GenAI (Yu & Jiang, 2025).

At a time when L2 writing is increasingly understood as digital and multimodal (Belcher, 2017; Jiang & Hafner, 2024; Yu et al., 2026), we suggest that there is a critical need for L2 writing teachers to revisit the monomodal bias in conventional language-centric feedback practice. This entails a need for L2 writing teachers to consider themselves as not just feedback providers for multimodal texts, but as feedback designers who can configure feedback-giving modes and feedback-mediated interaction into multimodal communicative assemblages, understood as complex arrangements of different elements such as language, audio, video, gestures, symbols, technologies, and experiences (Jiang et al., 2024; Kress, 2010). To prepare themselves to become multimodal feedback designers, L2 writing teachers should be aware of the potential of multiple modes in multimodal composing and of the affordances of multimodal feedback-giving modes for feedback design. They should also develop competence to orchestrate multiple feedback-giving modes into a coherent feedback ensemble (i.e., the final configuration of multimodal feedback design) by considering how feedback meanings can be remade

and changed across feedback-giving modes (Jiang et al., 2024). This would also pave the way for more productive teaming with GenAI to drive feedback-related innovations, which are further conceptualized in the next section.

### 3. From using GenAI to teaming with GenAI in giving feedback

Despite the growing number of studies on GenAI feedback in L2 writing, how L2 writing teachers should work with GenAI in giving feedback remains under-theorized (Crosthwaite & Sun, 2026). Extant research seems to favor cognitive models to elucidate the efficiency of GenAI in facilitating feedback (Guo & Wang, 2024), with scant attention to posthumanist or sociocultural perspectives that take teacher agency as relational to GenAI (Wang & Wang, 2025). Since the advent of GenAI, two major patterns of using GenAI in L2 writing feedback appear in the extant literature, that is, GenAI-led automating and human-led assisting. GenAI-led automating refers to using GenAI systems to automate feedback for the purpose of offloading feedback to GenAI with minimal human effort. Feedback automation has long been a focus in the research on automated writing evaluation (AWE), with many prior studies reporting positive effects of AWE on writing development, such as writing quality and student engagement (e.g., Zhai & Ma, 2023). Feedback-capable GenAI systems have emerged since late 2022, representing a paradigm shift in creating more personalized and interactive feedback than previous AWE systems and offering a promising basis for feedback to be adapted to different tasks, such as offering global and local corrective feedback on multiple drafts for different learners (Hyland, 2025). While GenAI feedback systems remain in their infancy, research on using GenAI for automated feedback is promising. For instance, Guo (2024) developed a GenAI agent, EvalMate, an online peer review system that leverages ChatGPT to scaffold university student reviewers' feedback generation, and reported promising affordances of the agent in supporting student reviewers' provision of quality feedback on peers' essays. After comparing GenAI feedback with teacher feedback, Guo and Wang (2024) found that ChatGPT generated a larger quantity of feedback than teachers, and that feedback was more balanced across content, language, and organization. In Li et al.'s (2024) study, GenAI feedback was regarded by the students as more relevant to their needs than teachers' general feedback because the study showed that, compared with GPT, the teacher raters tended to focus more on language but provided less relevant feedback on content and organization. Overall, these studies, while still taking feedback as language-centric, seem to suggest the possibility for teachers to offload at least some aspects of their feedback load to GenAI for feedback automation. That said, the monomodal bias in feedback continues to prevail in extant research on GenAI feedback.

Nevertheless, the benefits of GenAI-led automation in providing feedback remain inconclusive. Curry et al. (2024) found that GPT4 did a poor job of categorizing keywords in texts, made incorrect inferences about concordance (e.g., between homosexuality and Islam), and failed to identify direct and indirect questions. Lin and Crosthwaite (2024) observed that while teachers gave more consistent feedback addressing both local and global issues across students and drafts, GPT demonstrated unpredictable variability in feedback behavior, resulting in unusable feedback in authentic classroom settings. They further argued that while GPT could complement teacher feedback in dealing with sentence-level issues, it is not yet able to generate consistent responses even with the same prompt, and thus “may not be able to yield desirable outcomes aligned with teachers’ needs or goals” (Lin & Crosthwaite, 2024, p. 14).

Considering the mixed benefits of GPT feedback, Hyland (2025) points out that “automation is not (yet?) the answer” and that feedback should not be reduced to a “mechanical process simply aimed at improving student texts” (p. 6). In line with the need to sustain a human touch in feedback, researchers have been advocating a human-led assisting model to leverage the strengths of both AI and teachers in feedback provision. For instance, Guo and Wang (2024) suggested that teachers should collaborate with GenAI by examining, selecting, and adopting ChatGPT feedback as they see fit for their students. Zou et al. (2024) compared how 20 Chinese undergraduates used feedback from teachers and ChatGPT and noted that students effectively addressed language and content issues with teacher feedback but were more successful in integrating feedback on organization from ChatGPT. The authors then argued that ChatGPT feedback can be used as a complementary resource to teacher feedback. Similarly, Han and Li (2024) developed a ChatGPT-supported teacher feedback approach by engaging teachers in using, reviewing, and modifying ChatGPT-generated feedback to provide coded indirect feedback and rhetorical feedback on student essays. Their findings underscore the utility of GenAI in expanding the traditional feedback process as a feedback assistant. In their intervention study, Zhu et al. (2025) suggested that ChatGPT-assisted feedback improves preservice teachers’ ChatGPT usage skills and deepens their understanding of the feedback process and strategies. Their study lends additional support to the efficacy of the human-led assisting model for L2 writing teachers using GenAI as an assistant for feedback.

Despite many discussions on human-AI collaboration in feedback giving (e.g., Han & Li, 2024), the notion of collaboration is reduced to using GenAI either as a feedback surrogate (i.e., to replace teacher feedback through feedback automation) or as a feedback assistant (i.e., to assist teachers in feedback provision). This reduction is problematic because it may lead to human overreliance on GenAI and encourage mostly feedback efficiency rather than feedback efficacy.

Aligning with Hyland's (2025) suggestion, we argue that feedback automation through GenAI, despite its benefits in enhancing efficiency and reducing feedback workload, would dehumanize the learning potential of feedback and undermine the agency of L2 writing teachers as feedback designers.

Moreover, there remains an unchallenged focus on giving feedback in the linguistic mode and on using GenAI as a tool for automating linguistic feedback, manifesting a deeply rooted monomodal bias in using GenAI for feedback generation. To move beyond the monomodal focus, we argue for a need to use GenAI productively and expand the feedback target from text-based writing to include digital multimodal composition, and to expand feedback given in the linguistic mode to include multiple modes in feedback design. We therefore advocate the notion of *teaming* (Berretta et al., 2023) as one much-needed model of human-AI collaboration to guide how teachers can work with GenAI in giving multimodal feedback. Given the limitations of both GenAI and human teachers, this model aims to optimize and synergize their respective strengths to achieve the complex goals of feedback innovation for optimal student feedback uptake and L2 writing development. Drawing on Berretta et al.'s (2023) work, we define human-GenAI teaming in feedback giving as "a process between one or more human(s) and one or more (partially) autonomous AI system(s) acting as team members with unique and complementary capacities, who work interdependently toward a common goal" (p. 23). In human-GenAI teaming, three features are to be noted. First, the teaming process is dynamic, as the roles of team members are constantly adapting to contextual and task environments. Second, teaming is relational, as humans and GenAI can learn from and adapt to each other, and the collaborative relationship between teacher and GenAI can evolve toward a shared goal through shared agency, which is distributed between human(s) and GenAI systems. Third, the outcome of human-GenAI teaming points to augmented intelligence in feedback provision for both teachers and GenAI platforms, resulting in concurrent improvement in teachers' feedback literacy and GenAI platforms' functionality after recursive cycles of teaming (Berretta et al., 2023).

To illustrate the necessity of human-GenAI teaming, we highlight three key differences between human teacher feedback and GenAI-generated feedback with respect to understanding, processing, and feelings in feedback giving. In terms of understanding, GenAI feedback does not truly understand students' writing, as it is statistical and pattern-based, following preprogrammed algorithms. By contrast, teachers often draw on real-life experience and knowledge of students' histories and can understand the value in "errors" that may reveal creative thinking (Hyland, 2025). In terms of processing, GenAI is more structural and excels at generating feedback on surface-level features, whereas teacher feedback is more conceptual, as teachers can process underlying meanings, intent, and criticality

hidden in words and logic (Steiss et al., 2024). With respect to feelings, while GenAI can mimic empathetic language in feedback, it lacks a genuine understanding of human emotion and psychology. Thus, it differs from teacher feedback, which is stronger in building rapport and motivating or inspiring students through personal connections (Han & Li, 2024; Lin & Crosthwaite, 2024).

Given the specific strengths of humans and GenAI in giving feedback, we suggest treating the two as complementary partners and team members. Instead of using GenAI as either a surrogate or an assistant, we propose the model of human-GenAI teaming, which means treating humans and GenAI as team members and using GenAI as a feedback partner, with the purpose of augmenting human feedback from linguistic to multimodal through collective agency and co-evolved intelligence between humans and GenAI. The following section contextualizes human-AI teaming in three pathways for L2 writing teachers to facilitate multimodal feedback and multimodal feedback literacy development.

#### 4. Teaming with GenAI for multimodal feedback literacy development: Three pathways

We suggest three pathways for L2 writing teachers to team up with GenAI for multimodal feedback literacy development: (1) expanding feedback in the linguistic mode to feedback in multiple modes, (2) expanding the feedback target from how language is used to how multimodality is used, and (3) giving analytics-informed and process-oriented multimodal behavioral feedback. While these three pathways may appear daunting for L2 writing teachers to navigate, they represent future-oriented possibilities for transformative feedback innovations that are achievable through teacher-AI teaming.

##### 4.1. Expanding feedback from the linguistic mode to multiple modes

The first pathway represents a pattern of teaming with GenAI for the purpose of expanding feedback from the linguistic mode to multiple modes. This expansion comprises two sub-pathways. The first one involves visualizing linguistic feedback by using other modes (such as images and tables) as supplementary resources to re-present feedback messages communicated in the linguistic mode. Underlying this practice is a “weak” version of multimodality (Grapin, 2019), with other modes being used to enrich the linguistic mode for additional emotional and cognitive benefits in learning (such as reducing cognitive load and enhancing positive feelings). This strategy of making feedback multimodal through visualizing linguistic feedback has proved to be helpful in improving revision quality,

enhancing writing performance, and reducing cognitive load (Bakla, 2020). For instance, in their pioneering study on visualized GenAI feedback, Zou et al. (2025) developed a GenAI-powered writing chatbot to visualize the chatbot's feedback given in plain text by automatically adding "color changes, strikethroughs, mind maps, bold text, and tables enhancing clarity" (p. 5). Their study shows that, compared with students who received standard text-only feedback from GenAI, the students who received visualized GenAI feedback (multimodal in the sense that the feedback was presented and enriched via color variation, tabular formatting, and bolded text, which can be easily facilitated by GenAI tools) significantly improved coherence and cohesion in writing, with reduced negative emotions and lowered cognitive load (illustrating the value and efficacy of integrating multimodal feedback into GenAI-generated linguistic feedback). This study yields important evidence to support the role of multimodal feedback in building emotionally supportive and cognitively effective GenAI-assisted learning environments. This way of going multimodal appears less technologically demanding, as visualized chatbots can be developed with simple features such as color changes, strikethroughs, and bold text, as shown by Zou et al. (2025).

The second sub-pathway is transmediating feedback (on both monomodal and multimodal texts) from the linguistic mode to multiple modes, focusing on feedback message re-representation and combination for a synergistic effect (on students' feedback uptake and engagement) across modes and media. Underpinning this practice is a "strong" version of multimodality (Grapin, 2019), which draws on the New London Group's (1996) multiliteracies manifesto to view all modes of communication, including linguistic, visual, aural, gestural, and spatial, as equal and integral (rather than supplementary) to meaning-making and learning (Kress, 2010). This view encourages L2 writing teachers to decenter the written mode when giving feedback and consider how other modes of communication can be leveraged to optimize feedback communication. This entails an important need for L2 writing teachers to develop awareness of the affordances of multiple feedback-giving modes for feedback communication, as well as competence to combine the linguistic mode with other modes into a coherent feedback ensemble with possible intermodal relationships (e.g., elaboration, in which one mode is used to elaborate meanings communicated in another mode, and divergence, in which meanings represented in one mode differ from those in another mode) between and across feedback-giving modes (Jiang et al., 2024). For instance, written corrective feedback in the linguistic mode can be transmediated into screencast feedback with a combination of linguistic, visual, gestural, and aural modes. Previous research shows that such feedback transmediation can enhance teacher presence in asynchronous feedback situations and facilitate feedback engagement among students with diverse learning

needs and difficulties (Bakla, 2020; Cunningham & Link, 2021; Saeed et al., 2024). Despite the benefits, feedback transmediation across modes is challenging for L2 writing teachers given the digital demands. This challenge, however, can be tackled by working with GenAI as a feedback-giving partner. For instance, with text-to-speech AI such as ElevenLabs, writing teachers can easily convert their written corrective feedback into audio feedback, which can be further edited into a multimodal feedback ensemble (e.g., video feedback) by incorporating other feedback-giving modes such as visuals.

L2 writing teachers can move across multiple GenAI platforms to facilitate the transmediation of feedback across multiple modes. To begin with, teachers can prompt GenAI to generate automated written corrective feedback supported by explanations, reformulation, and paraphrasing. Following that, teachers can use GenAI to transform text-based written feedback into visual representations to make abstract ideas concrete. GenAI can automatically generate color-coded text analysis to highlight different elements in students' drafts. GenAI can also produce diagrams and mind maps to help students visualize the potential structure of their argument. Additionally, GenAI can create charts to display students' most common error types and pinpoint recurring issues. Instead of typing verbose end-comments, teachers can prompt AI to create a concise audio summary of what needs to be done to further improve the writing. Moreover, teachers can use GenAI to create interactive videos and screencast feedback by combining visual resources, audio, and real-time demonstrations for impactful feedback. For instance, teachers can use AI tools such as Synthesia (<https://www.synthesia.io/>) or HeyGen (<https://www.heygen.com/>) to create a concise and personalized video from text feedback. In addition, teachers can use AI to generate gamified and conversational feedback to create engaging and low-stakes practice environments for students.

A practical workflow for writing teachers to work with GenAI to give multimodal feedback can be designed as follows:

- Initial text analysis: The teacher reads through students' essays and then evaluates them through a GenAI tool with a custom prompt (e.g., "Analyze the essay for thesis clarity, paragraph coherence, and the top three grammatical errors"). This is not to suggest that the teacher should outsource feedback to GenAI without reading through students' essays themselves. The teacher can act as a co-agent (i.e., teachers see agency as residing not solely in themselves but as emerging from dialogic interaction with GenAI) with GenAI to minimize potential errors in their feedback and ensure that they do not miss significant points in text analysis.
- Written feedback: The teacher analyzes GenAI feedback and uses GenAI to summarize written comments with explanations and elaborations.

- Visual feedback: The teacher then prompts AI to create an outline for the essay, indicating areas for improvement with stronger supporting points and evidence.
- Audio feedback: The teacher then transforms the written comments into a 30-second audio file by using text-to-speech AI such as ElevenLabs (<https://elevenlabs.io/>), with a friendly and encouraging tone. The audio file can then be shared with students together with written and visual feedback.
- Further practice: The teacher can prompt AI to create custom practice questions based on students' areas of interest.

A visual representation of the workflow above is presented in Figure 1. Through the transmediation process, L2 writing teachers can leverage GenAI to deliver feedback in multiple modes that cater to diverse learning needs of L2 student writers (Jiang et al., 2024). We also anticipate that a comprehensive AI platform could be developed to avoid the need to shift across multiple AI platforms and accounts. A caveat is that the workflow is suggested mainly for analytic purposes based on our prior research experience, and it represents one possibility among many alternatives. There is a need to avoid taking the sequencing of multiple feedback types as a rule to follow. We anticipate teacher flexibility in adapting the workflow to their needs and contexts. In the meantime, while the multimodal feedback workflow aims at maximizing student uptake of feedback, how students engage with multiple sources of feedback remains another interesting line of inquiry to be further examined.

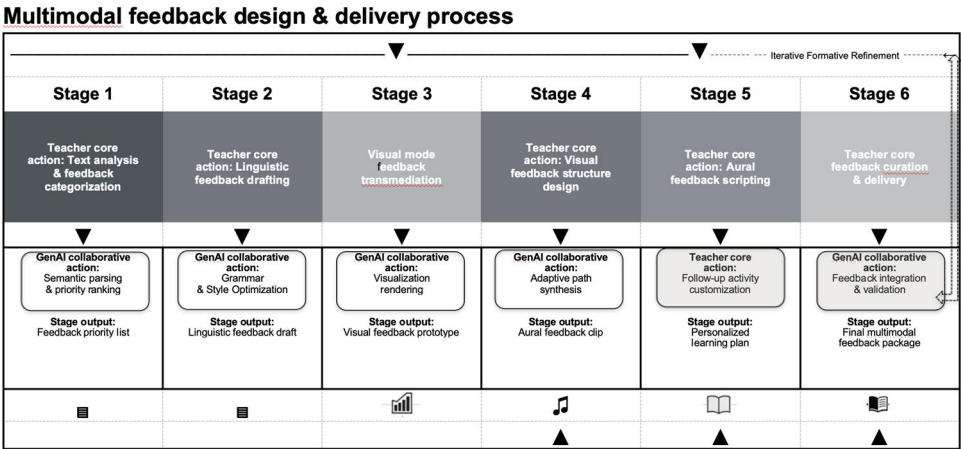


Figure 1 A practical workflow for writing teachers to work with GenAI to give multimodal feedback

#### 4.2. Expanding feedback target from how language is used to how language is used in combination with multimodality

The second pathway for L2 writing teachers to develop multimodal feedback literacy is to expand the feedback target from how language is used in L2 writing to include how language is used in combination with multimodality. As digital multimodal composing is now a fundamental literacy practice, it is essential for L2 writing teachers to shift feedback from a purely linguistic focus to a multimodal one (Jiang & Hafner, 2024). Yet prior research shows that when it comes to multimodal compositions, many writing teachers tend to replicate their conventional practice of giving written corrective feedback on and through words (Elola & Ozko, 2022). To prepare L2 writing teachers for feedback on multimodal compositions, we suggest multimodal synergy as a key concept for L2 writing teachers to develop the needed metalanguage and strategies when embracing multimodality in feedback. Multimodal synergy refers to how different modes are interwoven together to generate a meaning that is greater than the sum of each mode (Jewitt, 2008). L2 writing teachers are thereby advised to focus their feedback on rhetorical choices across modes, rather than just within the linguistic mode. For instance, instead of merely correcting grammar, teachers can give feedback on whether the language (e.g., script, on-screen caption) is appropriate for the tone of the video narrative or on how the language relates to the other modes (e.g., whether the voiceover describes what we see on screen) (Beltrán-Palanques, 2024). In terms of intermodal relationships, L2 writing teachers can give feedback on synesthesia, understood as the translation or shifting of meaning across different modes (Kress, 2010), and meaning relationships between and across modes, such as redundancy (e.g., the voiceover literally describes exactly what the audience sees in this video . . . this may feel repetitive), complementarity (e.g., the low-paced music complements the somber tone of the on-screen narration), and divergence/contrast (e.g., the student used a happy photo while their voiceover depicts sadness).

Feedback on multimodal synergy in digital multimodal compositions requires L2 writing teachers to possess not only linguistic knowledge, but also knowledge of multimodality and visual grammar, a sociosemiotic approach for meaning transformation (how meaning is reshaped within a single mode) and transduction (how meaning is re-created across different modes) in contemporary communication (Kress, 2010). To overcome the time and expertise barriers, L2 writing teachers can partner with GenAI to expand their feedback targets. In this partnership, teachers can set the instructional goals and rhetorical framework and provide the final judgment, while GenAI handles the time-consuming tasks of synergy analysis, pattern identification, and generating descriptive feedback based on teachers' criteria. A typical workflow for teacher-GenAI teaming can be set out

as follows: First, teachers can customize the GenAI bot with a multimodal metalanguage and rubric. An example prompt can be:

*I am an L2 writing teacher working at a secondary school. My students are creating video documentaries. Please generate a student-friendly glossary of 10 key terms for analyzing multimodality based on Kress and van Leeuwen's (2006) visual grammar, including definitions and examples for synergy, juxtaposition, framing, layout, voice-over, visual harmony, and transition.*

This prompt assigns a role to GenAI, followed by a description of the task and expected output from GenAI. Classical work in visual grammar has also been provided to GenAI for more research-based groundings. Teachers should also be prepared for an adaptive and recursive prompting process (see Appendix for one example) when interacting with GenAI. For those who are new to prompting, they may refer to, for instance, the CLEAR (concise, logical, explicit, adaptive, and reflective) path (Lo, 2023) as a guiding framework for effective prompting. Teachers can then adjust GenAI's output and provide it to students, creating a shared metalanguage for subsequent feedback activities.

Second, teachers can use GenAI to develop a multimodal rubric. To begin with, L2 writing teachers may consider the process-based model, which suggests that assessment can be distributed across four phases, including planning, designing, sharing, and reflecting (Hafner & Ho, 2020) and the genre-based model, which specifies five layers of assessing multimodal texts, including purpose, base unit, layout, navigation, and rhetoric (Jiang et al., 2022), as starting points. For instance, teachers can use the following prompt:

*Use the genre-based model to generate a detailed analytic rubric, with scales of 1-5, considering the following criteria: (1) purpose, (2) base unit, (3) layout, (4) navigation, and (5) rhetoric. Include descriptions for each level and focus on how language, visual, and aural modes work together to create meanings.*

L2 writing teachers can then develop a robust rubric for feedback on multimodal synergy in digital multimodal compositions.

Third, teachers can use the rubric and ask GenAI to conduct an initial multimodal analysis. An example prompt can be:

*I am an L2 writing teacher working at a secondary school. Now, with student consent, I will provide you with a transcript of a student's video*

*documentary and my marking rubric. Your task is to analyze the synergy between visual and audio elements. Please identify two moments of effective synergy, two moments of ineffective synergy, and provide one suggestion for improving communicative effectiveness through multimodality.*

L2 writing teachers can also ask GenAI to focus on L2 language use in a multimodal context by using prompts such as:

*Now analyze the transcript from the perspective of how language is used, but with a multimodal focus. Identify two instances where grammar use (e.g., passive voice) in the script writing might be difficult for a listener to comprehend when combined with simultaneous visual details. Please also give two vocabulary suggestions for a scene where a more precise or impactful word can enhance the synergy with a powerful visual (e.g., suggest “devastating” instead of “not good” to align with a dramatic image of catastrophe).*

With this, L2 writing teachers can move language feedback beyond written corrective feedback to how language functions in relation to other modes.

Fourth, teachers can select the most relevant and helpful feedback from GenAI's outputs and contextualize the feedback for students' learning needs. This process enables teachers to provide a more holistic judgment than GenAI can. For instance, teachers can comment as follows: “I know you have worked very hard on getting the interview clip. That is why I feel the AI's suggestion to re-edit it for better multimodal synergy is a great step for you. Your personal passion for the topic is what makes the overall argument so effective.”

The workflow above can produce many benefits for L2 writing teachers, but it may also be limited given that it is mainly based on existing GenAI systems that are designed for and evaluated on monomodal and textual input. This means that most existing GenAI feedback systems can neither “see” nor “hear” a student's video project and therefore cannot provide comprehensive multimodal feedback. The few systems that engage with multimodality are often confined to highly structured domains such as image analysis in mathematics. Considering the disconnect between the capacities of current AI technologies and the pedagogical needs for holistic feedback on multimodal compositions, we suggest a need to design and develop a multi-agent intelligent feedback system to support L2 writing teachers in giving feedback on multimodal synergy. We refer to this system as the DMC (i.e., digital multimodal composing) feedback agent, which is a multi-agent platform with specialized agents that analyze distinct semiotic modes (e.g., linguistic, visual, aural), and a synthesis agent that integrates the feedback from the other agents.

Specifically, the multi-agent DMC feedback system can be described as a hybrid agent comprising four coordinating agents as follows:

1. **Linguistic agent:** This agent can be powered by large language models (LLMs) such as ChatGPT and can provide feedback on transcribed audio and video scripts in relation to clarity, coherence, grammar use, and lexical choices. L2 writing teachers can use prompts to guide such feedback with reference to established criteria for evaluating language use in conventional language assessment regimes.
2. **Visual agent:** This agent adopts a state-of-the-art large multimodal model that can analyze the visual component of a digital multimodal composition, such as images, video screens, layout, typography, framing, salience, and color palettes. The design of such an agent can be grounded in principles of visual grammar to clearly specify the representational (e.g., context, subject, action), interactional (e.g., position, angle, shot), and compositional (e.g., salience, information value, framing, segregation, coherence, technical qualities) aspects of meanings represented through visuals (Kress & van Leeuwen, 2006). L2 writing teachers can then prompt the agent to assess how effectively the visual elements function in the communication of overall meanings and purposes.
3. **Aural agent:** This agent can be leveraged to analyze audio-related features, including tempo, mood, tone, articulation, the volume of the background soundtrack, the placement of sound effects, and the overall quality of the sound mix. This agent can be powered by models that can process audio libraries (e.g., Librosa). Teachers can then prompt the agent to evaluate how the aural mode contributes to the composition's tone and emotional effect.
4. **Synthesized feedback agent:** This agent will act as a central coordinator that receives and synthesizes feedback generated from the other three agents. L2 writing teachers can first prompt the agent to integrate feedback generated from the other three agents, focusing on multimodal synergy such as concurrence (e.g., the use of active voice reinforces the fast-paced narrative of the on-screen voiceover) or divergence (e.g., the formal language used clashes with the informal style of the visuals). Teachers can then map the integrated findings onto the preset DMC assessment rubric with reference to, for instance, the genre-based model (Jiang et al., 2022). Following that, and with teachers' input and synthesis, a user-friendly feedback report can then be generated by the teachers working together with GenAI. The report can be presented not only in the linguistic mode but also in multiple modes, depending on contextual needs and pedagogical objectives. Overall, through the multi-agent

DMC feedback system (see Figure 2), which can be designed by platform developers in consultation with teachers, L2 writing teachers will be in a better position to expand their feedback focus from language to include multimodality and make their feedback more inclusive of textual and cultural diversity in the contemporary writing landscape.

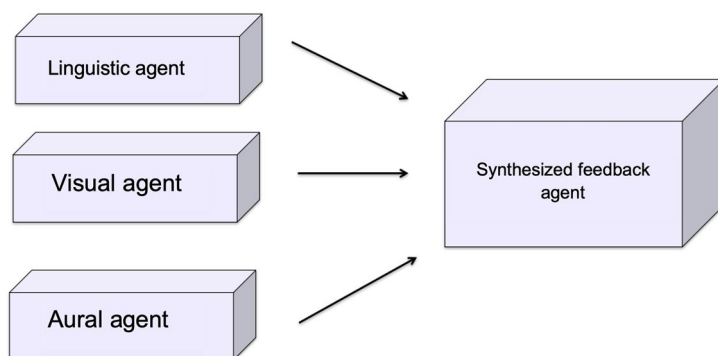


Figure 2 The multi-agent DMC feedback system

#### 4.3. Analytics-informed multimodal feedback on behavioral composing processes

The third pathway for L2 writing teachers to develop multimodal feedback literacy is to shift the focus from the writing/composing product to the writing/composing process for both monomodal and multimodal texts. L2 writing is valuable not only because the final written product has value, but also because the process of writing helps students develop essential skills, including goal setting, planning, regulating one's behaviors to research a topic, evaluating accuracy, revising, paraphrasing, orchestrating various composing tools, and synthesizing knowledge in a clear and persuasive manner (Flower & Hayes, 2016; Harris, 2024; Zimmerman & Risemberg, 1994). These skills should be the focus of L2 writing assessment, but doing so requires feedback on writing behaviors throughout the L2 writing process. In their study, Suraworachet et al. (2023) gave students personalized feedback on writing behaviors, in addition to content feedback, based on students' writing engagement analytics (i.e., analysis of student writing engagement data), which was based on data collected from online word processing platforms such as Google Docs. These data included how much time students spent on the platform, how much the content was edited, and exactly what content was added. The data were then logged to model students' writing engagement trends (e.g., edits once per week) and analytics, based on which students were offered feedback on how they

could improve their writing engagement (Suraworachet et al., 2023). Feedback interventions based on such analytics showed a significant positive impact on the engagement and performance of students who struggled and were initially predicted to fail in writing (Suraworachet et al., 2023). This was because the feedback included formative suggestions on how they could plan their writing practice and helped them visualize how high-performing students engaged with their writing. We suggest that Suraworachet et al.'s (2023) process feedback can be expanded from linguistic to multimodal, and this type of multimodal process feedback with behavioral analytics represents an example of the types of innovations needed for L2 writing feedback to be more meaningful in the GenAI-saturated world.

To facilitate multimodal feedback on writing (and multimodal composing processes) based on engagement analytics, L2 writing teachers can team up with GenAI. In other words, they can give personalized multimodal behavioral feedback on the process of L2 writing (and multimodal composing) based on writing/composing engagement analytics using data from multiple AI platforms such as Google Docs, ChatGPT, or ElevenLabs. First, L2 writing teachers can use AI tools to identify writing/composing engagement metrics, including, for instance, keystroke logging (e.g., total time composing, pause length, frequency of various revisions, total time on multimodal remixing), revision types (e.g., surface-level revision, meaning-changing revisions, layout revisions), and resource use (e.g., use of Google Translate, a dictionary, source text, or AI imagery). Based on the metrics and analytics, teachers can then work with GenAI to give customized multimodal behavioral feedback.

A holistic feedback loop for L2 writing can be suggested as follows: First, teachers can use behavioral data sources from writing platforms such as Google Docs, via writing history and an API (i.e., application programming interface), to obtain a complete log of writing behavior along with timestamps. Then teachers can use GenAI as an analytics engine to analyze the data to create a behavioral profile for process feedback (e.g., “Your revisions mostly stay at the surface level. Try to revise for stronger sentences and paragraph structure”). The behavioral profile can also be visualized by using text-to-visual AI platforms (teachers can input the profile description to AI to generate visual representations of the profile). Such visualized behavioral feedback can then be offered to students to help them unpack their writing habits and understand what writing strategies need to be further developed. Second, teachers can use ChatGPT (or other similar AI tools) as a linguistic agent to provide personalized feedback on grammar, syntax, vocabulary, and argument. Third, teachers can use multimodal GenAI platforms to convert the textual feedback generated from the analytics and ChatGPT into, for instance, aural feedback to make feedback more personal and engaging than just letting students read the feedback text. In the final feedback report (which can be viewed as a feedback ensemble), students can first view a visualized graph

displaying their time spent on planning, writing, and revising. Then, students can also hear an AI voice (with a supportive and gentle tone) saying: “Hi, I noted you worked really hard on your main body. For your next essay, try spending more time planning your major arguments and supportive evidence. That might make the writing process smoother.” In addition to this, students will also be provided with textual feedback (in a Google Doc) with comments highlighted from ChatGPT. With a feedback ensemble generated through teacher-AI teaming as described above, L2 writing teachers can move from using AI for automated feedback generation to using AI for AI-supported writing coaching.

Similarly, a holistic feedback loop for digital multimodal composing (DMC) can be configured as follows: First, as DMC involves a wider range of creative composing behaviors (e.g., editing transition effects between visual and linguistic modes), L2 writing teachers can set the engagement analytics to track behavior on and across multiple digital platforms, including, for instance, (1) Google Docs or Google Slides, with complete log data showing storyboard development, the sequence of slides/infographic/video creation, time spent on scripting vs. time spent on designing, (2) Canva/Adobe Firefly (e.g., to track time spent on different design elements such as text, images, video clips, use of visual effects, and the sequence of multimodal remixing), (3) WeVideo/iMovie/CapCut to track the timeline of editing patterns such as layering practice in remixing, frequency of using transition effects, time spent on audio remixing, on-screen caption editing and aligning, and use of B-rolls, (4) POE/ChatGPT to track prompting behaviors for brainstorming, script editing, or troubleshooting other composing issues, or (5) ElevenLabs to track behaviors of voiceover crafting, including iterations on voice generation, changes to tone, pace, and style, time spent on synchronizing audio with visuals, and attempts to re-record on-screen voiceovers.

Second, teachers can use a synthesis agent to analyze the behavioral data collected from multiple platforms and sources to identify patterns for deeper insights into composing processes. For instance, teachers may identify three types of composers: *the last-minute composer* (i.e., those students who spent, for instance, 85% of the project time collecting multimodal resources and wrote the script in the remaining 15%, resulting in a disconnected narrative), *the aesthetic over-emphasizer* (i.e., those students who may spend, say, 70% of their time in Canva perfecting visual design, with minimal revision to the core written script, resulting in a beautiful but shallow composition), and *the reluctant audio editor* (i.e., those students who directly used the default and robotic text-to-speech outputs for voiceover despite having access to ElevenLabs, indicating a potential lack of confidence in audio production).

Third, based on the synthesized analytics and identified patterns, L2 writing teachers can then use GenAI to generate personalized and targeted multimodal feedback for students. For the *last-minute composer* whose Google Docs

log shows that the script was written in one burst and whose WeVideo timeline shows resources dragged in hastily, L2 writing teachers can consider using GenAI to generate a flow chart to visualize the actual workflow for the target students, and then offer a recommended workflow (e.g., with iterative cycles of scripting and remixing). Following that, teachers can use ElevenLabs to generate audio feedback to explain directions for improvement (e.g., “I noted that you collected all your images and video clips first. That is great preparation. But writing the script last makes it hard for the visuals and narrative to fit together. Next time, consider writing a rough script first, and then gathering visuals that match each part of your narrative”). For the *aesthetic over-emphasizer*, teachers can design personalized multimodal feedback by integrating textual feedback (via a Google Doc), visual feedback (via Canva), and audio feedback (via ElevenLabs). For the *reluctant audio editor*, L2 writing teachers can use GenAI to generate a short, guided tutorial on using AI, which shows how to export a script from Google Docs, import it into ElevenLabs, and generate an authentic voiceover for a DMC project. Teachers can also generate positive reinforcement audio feedback via ElevenLabs (e.g., “The script has a confident tone! Try to use a more natural voice in ElevenLabs to make that confidence shine through even more. Click the tutorial video above to see how this can be achieved”). Throughout the process, L2 writing teachers need to team up with GenAI to achieve data aggregation from multiple platforms (including Google Docs, Canva, CapCut, the ChatGPT API, and ElevenLabs), identification of behavioral patterns and learner profiles, and then feedback orchestration with the most effective combination of feedback-giving modes rendered possible by multiple GenAI tools (e.g., ChatGPT/DeepSeek for textual prompts, ElevenLabs for personalized, empathetic guidance, and data visualization tools such as Google Charts to generate charts and graphs). An overview of the process is presented in Figure 3.

With the kind of multimodal feedback described above, L2 writing teachers can guide students to become effective writers and digital multimodal composers. The analytics-informed and process-based behavioral feedback provides a more holistic view of students’ composing processes, offering support not just for writing, but also for the full range of new literacy skills: visual design, audio production, project management, digital literacy, and, more importantly, multimodal synergy. The L2 writing teacher’s role would then evolve from the sole source of feedback to a conductor (designer) of an AI-powered feedback orchestra (ensemble), with the teacher’s expertise in inspiration, problem-solving, and personal mentorship remaining essential throughout the process.

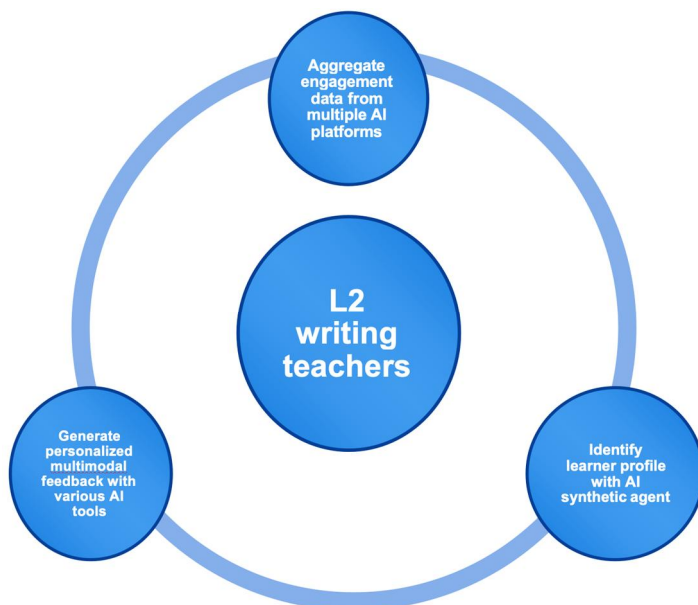


Figure 3 An overview of giving analytics-informed multimodal behavioral feedback

## 5. Challenges and implications

In the previous section, we have developed three pathways for L2 writing teachers to team up with GenAI, including expanding the feedback given in the linguistic mode to multiple modes, expanding feedback target from language to include multimodal synergy, and developing analytics-informed and process-based multimodal behavioral feedback. Underlying our argument is a conceptualization of GenAI as serving not only to externalize human cognition (with certain human feedback defined, modeled, and replaced by GenAI as a tool) or internalize human cognition (i.e., humans internalize GenAI models and change their thinking about feedback), but also, more importantly, in Cukurova's (2025) words, "to extend human cognition as part of tightly coupled human and AI hybrid intelligence systems" (p. 472). In this tightly coupled system, changes in both humans (e.g., L2 writing teachers) and agents (GenAI agents) can be anticipated through their interactions and relational co-evolutions, leading to an emergent synergistic intelligence that is both human and artificial and that is expected to be more than the sum of their separate intelligences (Cukurova, 2025). This echoes a posthumanistic perspective that focuses on emergent and relational agency distributed among teachers, AI technologies, and their assemblages (Wang & Wang, 2025). In other words, through teaming with GenAI and

drawing on multimodal knowledge, we can expect L2 writing teachers to expand their feedback literacy from linguistic to multimodal and make their feedback more responsive to and inclusive of changing composing practices. To team up with GenAI for the development of multimodal feedback literacy, L2 writing teachers' linguistic knowledge of L2 writing and composing remains essential. To move beyond the language-centric feedback practice, there is a need for L2 writing teachers to develop knowledge of visual grammar (i.e., the design and interpretation of meanings in visual representations; Kress & van Leeuwen, 2006) and transpositional grammar (i.e., how meanings move across different modes; Cope & Kalantzis, 2025), in addition to conventional linguistic grammar. Nevertheless, both visual and transpositional grammar may remain absent from most L2 writing teacher training programs. Considering that they offer important frameworks for L2 writing teachers to provide feedback on how language can be used in contexts of multimodal synergy and in designing communicative ensembles with multiple feedback-giving modes, we suggest incorporating these frameworks (visual and transpositional grammar) into L2 writing teacher preparation programs. Professional development workshops on how visual and transpositional grammars can be employed for writing prompts and evaluating GenAI outputs can also be offered to L2 writing teachers.

On the other hand, while the three pathways presented in this paper may advance feedback in L2 writing, there may be some unintended challenges. The first concern derives from potential hallucinations and fallacies (e.g., racial bias in visual representation, fake images) in GenAI platforms and outputs, which may become more complicated when they involve monomodal and multimodal outputs (Westberg & Kvåle, 2025). This may pose additional demands on L2 writing teachers' knowledge of language and multimodality in evaluating the validity of feedback synthesis from, for instance, the proposed multi-agent feedback system. Second, L2 writing teachers may also be influenced by their interactions with the GenAI systems in the teaming process, but the nature of such influences and the pertinent challenges for multimodal feedback literacy development remain unclear. Currently, we lack long-term impact studies on these interactions in the L2 writing and feedback research community. We are now experiencing a pivotal moment for L2 writing researchers to envision a future of feedback and ensure that GenAI is used responsibly to achieve that future. Therefore, research on teaming for tightly coupled, co-evolved hybrid intelligence (Cukurova, 2025) in feedback innovation can play a critical role in stimulating empirical investigations of human-GenAI collaboration. Such investigations can also provide insights for improving teachers' multimodal feedback literacy in their teaming interactions with GenAI. As evidence from such studies emerges, we expect that the future of feedback in L2 writing with co-evolved hybrid intelligence

multi-agent systems will be more linguistically, culturally, and digitally responsive to evolving composing technologies and practices.

It is also important to note that the design and development of a linguistically and culturally responsive multi-agent DMC feedback system will largely be possible through teacher-AI teaming, in which the role of teachers will remain essential, considering the possible issues regarding AI hallucinations and fallacies in multimodal evaluation and output generation (such as AI imagery; Westberg & Kvåle, 2025). We are not suggesting that L2 writing teachers should learn how to develop GenAI-powered feedback agents or systems, as we do not regard this programming capacity as a prerequisite for L2 writing teachers to engage in teaming with GenAI for multimodal feedback innovations. Nevertheless, we recommend that GenAI programmers and developers consult L2 writing teachers' expertise regarding the design of multi-agent multimodal feedback systems. This can help ensure that these systems are developed in accordance with principles of linguistic, visual, and transpositional grammars, and that the human touch remains essential in the feedback loop (Hyland, 2025).

## 6. Conclusion

In response to the prevalent but dichotomous use of GenAI as either an automated feedback surrogate or a human-led feedback assistant, we call for L2 writing researchers and practitioners to be critical of the monomodal bias underlying the extant use of GenAI as merely a linguistic feedback tool in research and practice. In addition to the GenAI-led automation and human-led assistant models of using GenAI in extant feedback practice and research, this article presents a forward-looking human-GenAI teaming model to conceptualize three pathways for L2 writing teachers to develop multimodal feedback literacy and design multimodal feedback by treating GenAI as a co-evolutionary partner and team member. We further expand the notion of multimodal feedback literacy developed in Jiang et al.'s (2024) framework by expanding the feedback target from language use in traditional writing to synergy in multimodal composing and integrating GenAI-mediated feedback-giving modes into the multimodal design of feedback. In so doing, we argue for a need to reconceptualize multimodal feedback literacy as the literacy to give feedback on multimodal synergy in multimodal composing and to present feedback in multiple feedback-giving modes to L2 student writers.

We also advocate integrating learning analytics by using multiple AI tools to design process-based multimodal feedback on composing/writing behaviors. The three pathways offer an important roadmap for L2 writing teachers to envision how they can partner with GenAI for transformative feedback innovations.

Further research is needed to explore how the three pathways can be implemented and refined across contexts. To better guide further research on the productive use of GenAI for multimodal feedback innovations and multimodal feedback literacy development, we consider it important for GenAI and feedback researchers to employ expanded theoretical perspectives such as the posthumanist approach (Wang & Wang, 2025) to reposition teachers in relation to GenAI. There is also a need to go beyond the efficiency-oriented discourse, which seems to be prevalent in extant research on GenAI use in L2 writing and feedback, and scrutinize ethical and critical aspects of GenAI use for multimodal feedback.

Moreover, given the overt focus on higher education settings in extant research on GenAI feedback, we also believe that it would be fruitful for future research to explore teacher-AI teaming in feedback provision in primary and secondary writing contexts. Considering the concerns over GenAI access and the divide between the haves and the have-nots (Ortega, 2017), the societal and ethical impact of designing multimodal feedback with GenAI tools and the pertinent implications for multimodal feedback literacy development remain unclear and need to be further explored. Collective efforts are warranted if the three pathways are to be actualized for L2 writing teachers to team up with GenAI for multimodal feedback literacy development for the optimal long-term benefit of students' learning. By strategically teaming up with GenAI, L2 writing teachers are in a better position to transform, through multimodal feedback, from the sole source of linguistically focused feedback into master designers of multimodal feedback, ensuring that students receive comprehensive, insightful, and manageable guidance and become proficient digital writers and multimodal communicators. Empirical studies are therefore warranted to explore L2 writing teachers' multimodal feedback literacy development through teaming with GenAI across different educational contexts.

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APPENDIX

An example of adaptive and recursive prompting

| Steps               | Prompt and AI response                                                                                                                                                                                                                                                                                                                                                                                                                                   | Note                               |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Initial prompt      | "I am an L2 writing teacher working at a secondary school. My students are creating video documentaries. Please generate a student-friendly glossary of 10 key terms for analyzing multimodality based on Kress and van Leeuwen's (2006) visual grammar."                                                                                                                                                                                                | Follow the CLEAR path              |
| AI response 1       | AI may generate a list of 10 constructs such as "salience," "framing," "multimodal synergy," etc.                                                                                                                                                                                                                                                                                                                                                        |                                    |
| Subsequent prompt 1 | After reflecting on AI response 1, teachers can use subsequent prompt 1 as follows:<br><br>"Thank you. The list is helpful. But some terms are too abstract for my primary 3 learners of English as a second language in Hong Kong. Please adapt the constructs using plain and concise language. Please add a concrete example from a typical student multimodal text. Please place the list into a table with a single simple sentence for each term." | Adaptive and reflective refinement |
| AI response 2       | AI then provides a table as suggested.                                                                                                                                                                                                                                                                                                                                                                                                                   |                                    |