



ENHANCING L2 WRITING SKILLS: CHATGPT AS AN AUTOMATED FEEDBACK TOOL

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ABSTRACT

Aim/Purpose	The present study explores the use of AI-powered ChatGPT as a feedback tool for automated writing evaluation in a higher education context.
Background	Artificial intelligence (AI) is increasingly applied in the field of education, offering new opportunities with its evolving capabilities. One area where AI tools have promising potential is the field of second/foreign language (L2) writing.
Methodology	Participants, Turkish pre-service teachers of English enrolled in an academic writing course, received feedback from ChatGPT, peers, and the course instructor. Data came from focus-group interviews focusing on the participants' perceptions of ChatGPT as a feedback tool in comparison to peer and teacher feedback. Thematic analysis was conducted on the transcribed interview data.
Contributions	Students can benefit from AI feedback by independently refining their writing. They should develop critical thinking skills when using AI tools like ChatGPT for feedback.
Findings	Thematic analysis revealed that participants thought ChatGPT had several affordances, such as practicality, interactivity, and adaptability; however, it also had certain constraints, such as occasional inconsistencies and dependence on the quality of prompts. Overall, the study highlights that ChatGPT could be a valuable feedback tool for L2 writing.
Recommendations for Practitioners	The findings suggest that ChatGPT can significantly facilitate the L2 writing process but cannot fully replace feedback from peers or teachers. Teachers should provide initial training and ongoing support to students in using AI effectively for feedback. Policymakers should consider the advancements in AI and their

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implications for L2, anticipate students' increasing access to advanced writing assistance, and seek ways to offer suitable guidance.

Future research This study tapped into students' experiences as a snapshot. Future research may focus on the long-term influence of ChatGPT feedback on L2 writing and how to combine it with other types of feedback to optimize learning.

Keywords artificial intelligence, ChatGPT, feedback, second language writing, higher education

INTRODUCTION

Feedback is a pivotal component of second language (L2) writing and receives extensive attention in language education (Z. Li et al., 2014). It is commonly recognized as offering significant learning advantages, giving writers insight into their audience and an appreciation for what readers find valuable within a text (Hyland, 2016). By communicating to students what quality performance looks like and how to attain such performance, feedback leads to an improvement in writing skills (Graham et al., 2015). Typically, feedback focuses on discourse-level issues, covering aspects such as cohesion, essay structure, topic development, and/or written corrective feedback for the purpose of correcting linguistic errors. However, in process-oriented and genre-based approaches, feedback also focuses on factors such as audience, writing purposes, and writer's processes, prioritizing the development of meaningful content and appropriate genre structures over language accuracy (Lee, 2017).

Teacher feedback is the most commonly applied feedback type in the L2 writing context (Hyland & Hyland, 2019). It is widely recognized as a constructive assessment that guides students toward improved writing practices (Hyland & Hyland, 2019) and leads to enhanced student engagement in L2 writing (e.g., Cheng et al., 2023; Tian & Zhou, 2020). Students also perceive feedback from their teachers as helpful and motivating and prefer it over other feedback types (Fong & Schallert, 2023; Graham et al., 2015). However, providing feedback can be a challenging task for teachers due to large class sizes and time constraints (Lee, 2017). Teachers often feel overwhelmed with students' errors and the task of providing comprehensive feedback to help students improve (Goldstein, 2006; Lee, 2017).

While teacher feedback is typically prioritized by students, peer feedback is also highly valued for its ability to provide a diverse range of perspectives on writing (Huisman et al., 2019; Yao et al., 2021). Peer feedback benefits both givers and receivers, contributing to their writing development. By analyzing their peers' writing and providing feedback, students can gain insights into their own writing development processes and get new perspectives about L2 writing. Similarly, students use peer feedback to solve their writing problems (Yu & Hu, 2017). Moreover, peer feedback addresses practical challenges, such as providing timely responses in large classrooms, making it a valuable addition or alternative to teacher feedback for effective writing improvement (Yu, 2021; Zhang et al., 2014).

With the advancement of technology, computer-generated feedback, typically provided by automated writing evaluation (AWE) systems, has become increasingly popular in L2 writing (Ranalli & Hegelheimer, 2022; Shi & Aryadoust, 2024). AWE technologies primarily use natural language processing (NLP) tools to identify linguistic, syntactic, semantic, or rhetorical features within text. They also use statistical or machine-learning algorithms to generate scores and feedback (Wilson & Roscoe, 2020). The effectiveness of feedback by AWE has been evidenced by recent meta-analyses on the topic (e.g., Fu et al., 2022; Mohsen, 2022; Shi & Aryadoust, 2024; Zhai & Ma, 2023). Concurrently, research has focused on users' perceptions and attitudes toward automated feedback (Jiang et al., 2020; J. Li et al., 2015; Ranalli, 2018). While some students were satisfied with the feedback provided (Alnasser, 2022; J. Li et al., 2015; O'Neill & Russell, 2019), others expressed concerns regarding the reliability of scoring, overemphasis on surface structures, generic feedback on content and organization, and the absence of human interaction, preferring human raters (Dikli & Bleyle, 2014). Shi

and Aryadoust (2024) suggest that the current limitations of AWE systems stem from their constrained capabilities, which fail to address learners' needs for personalized support beyond surface-level errors and risk overlooking aspects such as content organization, coherence, and style, leading to an inadequate assessment of students' writing proficiencies.

The latest developments in artificial intelligence (AI) have paved the way for improved AWE, particularly through the integration of generative AI technologies like large language models (LLMs). Models such as ChatGPT, Gemini, and LLaMA represent a substantial advancement in providing personalized, human-like feedback that addresses both surface-level and higher-order writing skills (Wiboolyasarini et al., 2024). Trained on extensive text corpora, these LLMs can identify complex language patterns and offer more detailed and contextually relevant feedback. In contrast to traditional AWE systems, LLMs use a natural language interface that simplifies and enhances the feedback process (Kasneci et al., 2023).

Despite the promising improvements, there is a notable research gap regarding the effectiveness of generative AI tools in AWE processes. While these technologies offer the potential for more comprehensive and personalized feedback, there is limited empirical evidence on their effectiveness and comparative efficacy against traditional feedback methods (Barrot, 2023; Meyer et al., 2024). The present study aims to address this gap by exploring pre-service teachers' perceptions of ChatGPT as a feedback tool and assessing its effectiveness in comparison to teacher and peer feedback. By doing so, it aims to provide valuable insights into enhancing L2 writing instruction in higher education settings, particularly in terms of integrating AI-driven tools into the feedback process.

CHATGPT AND L2 WRITING

The potential of ChatGPT in supporting L2 writing is promising. ChatGPT can generate grammatically correct essays, suggest essay topics, create outlines (Barrot, 2023), help generate ideas (Lingard, 2023), adjust text difficulty to learners' proficiency levels (Bonner et al., 2023), and facilitate guided writing (Kohnke et al., 2023). It helps to maintain students' interest and motivation in L2 writing and enhances their engagement (Baskara, 2023). Furthermore, its ability to process extended input and understand diverse prompts enables the delivery of immediate, adaptive, and precise feedback on writing samples. ChatGPT addresses both low-level language issues and more advanced concerns, i.e., the organization and strength of arguments, and reduces the workload of L2 writing teachers (Barrot, 2023; Lin & Chang, 2020; Su et al., 2023). It can also assign scores based on predefined criteria (Barrot, 2023; Lin & Chang, 2020; Su et al., 2023).

In educational settings, only a few studies have explored the use of ChatGPT in L2 writing feedback. Some studies focused on comparing ChatGPT-generated feedback with human feedback, while others examined student perceptions of ChatGPT as a feedback source. For instance, Yoon et al. (2023) found that ChatGPT's coherence and cohesion scores for 50 essays by Grade 12 English learners in the U.S. strongly correlated with teacher scores. However, ChatGPT could not identify the main ideas in lower-scoring essays, relied heavily on the presence or absence of connectives rather than their effectiveness or appropriateness, missed idea repetitions, and provided a considerable amount of inaccurate feedback, leaving some major issues unaddressed. The authors concluded that using ChatGPT alone would not equip students with the feedback necessary for meaningful revisions. Similarly, Algaraady and Mahyoob (2023) analyzed 88 EFL learners' essays and found that ChatGPT effectively identified most surface-level errors but struggled with detecting deeper structural and pragmatic writing issues, which teachers could typically recognize. They suggested ChatGPT, with its capacity to give immediate and personalized feedback, should be used as an aid, not a replacement, for teacher feedback. Guo and Wang (2024) compared feedback by ChatGPT and teachers on Chinese EFL students' argumentative essays, finding that ChatGPT generated significantly larger amounts of feedback compared to teachers. Unlike teacher feedback, which predominantly addressed content

and language issues, ChatGPT distributed its attention evenly across content, organization, and language aspects. They recommended combining ChatGPT's feedback with teacher feedback for a more balanced review.

While studies on the effectiveness of ChatGPT feedback in L2 writing are emerging, fewer studies focus on students' perceptions of this feedback. However, how students perceive the feedback is another aspect of feedback effectiveness, as students need to find feedback useful for feedback to benefit their learning and development (Meyer et al., 2024). In one such study, Bok and Cho (2023) surveyed 71 Korean college students using ChatGPT to revise their academic writing. Students appreciated the instant responses, accessibility across time and space, and accurate correction of vocabulary, grammar, and paragraph structure errors. However, they noted challenges like the absence of error descriptions, feedback that was difficult to comprehend, inconsistencies in responses, concerns about diminishing authorship, and uncertainty about its effectiveness in facilitating learning. Similarly, Mahapatra (2024) found that Indian ESL students using ChatGPT for self and peer feedback viewed it positively for content development and grammar accuracy. They also highlighted how it promoted collaboration among peers and facilitated task completion. Students also expressed some concerns. They claimed that ChatGPT hindered creativity in content organization and fostered an overreliance on the tool. Meyer et al. (2024) studied 459 German students using ChatGPT for feedback on an argumentative writing task. Students reported positive emotions increased motivation, and found the feedback useful, though the perceived usefulness was moderate, indicating room for improvement.

Given the scarcity of research on the use of ChatGPT as a feedback source in L2 writing environments and the necessity of understanding students' perspectives, the present study aims to fill this gap by gathering in-depth information from pre-service teachers (PTs) of English. Specifically, it will explore how PTs perceive the effectiveness of ChatGPT in providing feedback on their essays and compare it with peer and teacher feedback. Notably, no existing studies have investigated EFL PTs' engagement with ChatGPT for receiving feedback on their writing or their perceptions of its utility.

PTs are a crucial stakeholder group in language education, as they are the future educators who will likely incorporate various feedback methods, including ChatGPT, into their teaching practices. Understanding their experiences and perceptions can provide valuable insights into the potential integration of ChatGPT in language teaching and its implications for teacher training programs. Additionally, this study aims to demonstrate a systematic approach to integrating ChatGPT into the writing process, an aspect that has not been clearly illustrated in the existing literature. Through these contributions, the study seeks to enhance the understanding of ChatGPT's role in L2 writing feedback and its broader impact on language education.

The following research questions specifically guided the present study:

- (1) How is ChatGPT perceived by Turkish PTs of English as a feedback tool in an L2 writing course?
- (2) How do these students compare ChatGPT feedback with peer and teacher feedback?

METHODOLOGY

THEORETICAL FRAMEWORK

The present study is theoretically guided by two frameworks. The first one is the framework of Winstone and Carless (2020) based on new paradigm feedback thinking, emphasizing dialogue and student engagement in higher education contexts. They conceptualize feedback as “a process whereby students are proactive in seeking, making sense of, and using comments on their performance or their approaches to learning” (p. 6). Drawing from a socio-constructivist approach, the framework views students as active agents capable of initiating feedback interactions and identifying areas for

improvement. The framework also emphasizes teachers' role in supporting students in engaging in productive feedback interactions. In the present study, this conceptualization of feedback is adopted, with ChatGPT facilitating student-initiated feedback processes and encouraging active engagement and dialogue to tailor feedback to individual needs.

The second framework, an AI literacy framework by Warschauer et al. (2023), is adopted to guide the writing instructor in helping students use ChatGPT effectively to improve their English writing skills. Their framework proposes five principles: (i) being aware of the basics of AI writing tools' functions, strengths, weaknesses, and biases, (ii) learning how to access and navigate AI writing tools for different kinds of tasks related to writing, (iii) learning how to prompt AI to generate the most helpful content, (iv) confirming the accuracy of AI-generated content, and (v) learning how to incorporate AI-generated texts in their own writing ethically and effectively (pp. 10-15). Overall, both frameworks offer insights into how to effectively implement ChatGPT in L2 writing instruction while empowering students to take an active role in the feedback process.

CONTEXT OF THE STUDY

Following a qualitative approach, the present exploratory study was conducted in the context of a four-year English Language Teaching (ELT) program at a Turkish state university in İstanbul, Türkiye. In the first year of the program, PTs are required to take several language courses focusing on the development of four language skills. Two of these courses, Advanced Reading and Writing (ARW) I & II, aim to improve students' academic reading and writing skills. The curriculum of both courses typically involves reading and discussions on diverse topics, learning about different essay genres, and writing essays specific to a given genre and topic. The 3-hour compulsory ARW II course, which served as the setting for this study, is content-based, focusing on ELT-related topics. In the course, PTs engage with articles discussing ELT themes, such as the use of the native language in the L2 classroom or the phenomenon of English as a lingua franca. A typical lesson begins with a class discussion on the theme of the week. Following the discussion, PTs are exposed to a specific essay genre, i.e., compare-contrast, cause and effect, argumentative, or definition, and analyze several samples with their instructor. Then, they begin drafting their essays, complete them in the course of a week, and bring them to the next class for peer feedback based on a rubric provided by the instructor. Upon receiving peer feedback, PTs revise their essays and submit the second draft to their instructor for further feedback. As the last step, PTs revise their essays and submit the final version along with all previous drafts for grading. All versions of student essays are graded. This cycle is repeated for each essay genre.

PARTICIPANTS

At the time of the study, 52 PTs were enrolled in the 15-week ARW II course. Before beginning to study in their department, they passed the proficiency test administered by the English Preparatory School, indicating a B2 level proficiency. The students were informed about the study and the data collection procedure. They were told that those who completed the required four writing tasks – writing essays in comparison and contrast, cause and effect, argumentative, and definition genres – would be eligible for participation in focus-group interviews for data collection purposes (see the Appendix for the interview questions). Eight PTs were selected randomly from among the volunteers to gain in-depth insight into their perceptions of the feedback processes. These selected PTs were aged between 18 and 20. Three of them were females.

Although it was not among the participant selection criteria, initial talks with the PTs revealed that none of the participants previously used ChatGPT to get feedback on their writing. Prior to the study, an informed consent form was obtained from the PTs electronically. In order to ensure confidentiality, all participants were assigned an identification number during the data analysis.

DATA COLLECTION AND ANALYSIS

The data came from two focus-group interviews. Focus-group interviews were chosen based on the principles of social constructivism, which emphasize the importance of social interactions in the construction of knowledge (Merriam & Tisdell, 2015). This method is particularly effective for exploring participants' perceptions, as it generates rich data through the interaction among group members. The group design encourages participants to engage in deeper thinking in response to each other's views, challenge each other, and elaborate on their thoughts (Bogdan & Biklen, 2007).

The first interview was conducted after PTs received peer feedback, along with teacher feedback on their 'comparison and contrast' and 'cause and effect' essays. It aimed to explore their perceptions of the peer and teacher feedback based on their experiences. The second interview took place following PTs' use of ChatGPT as a feedback tool for their argumentative and definition essays, supplemented with teacher feedback. The aim was to investigate how PTs perceived the use of ChatGPT for feedback and the subsequent revision process, comparing it with their perceptions of peer and teacher feedback.

Both interviews were conducted online via Zoom, and each lasted around 90 minutes. With the consent of the PTs, the sessions were recorded for transcription purposes. The interviews were conducted in Turkish, the students' native language, to create a comfortable environment and avoid any potential language-related barriers. The extracts provided in the findings section were translated from Turkish by the researchers and checked by an EFL instructor for reliability. The interviewers carefully moderated the sessions to ensure all participants had equal chances to express their views.

Thematic analysis was run on the data from the interviews, following the steps suggested by Braun and Clarke (2012). The process started with the transcription of the data. Then, the two researchers read the data several times to familiarize themselves with it and formed the initial codes independently to ensure reliability. After that, they collapsed the codes into themes and compared their results. Following that, they reviewed the themes, defined them, and labeled them. When discrepancies occurred, they re-examined the data in an iterative process until they came to an agreement. Table 1 provides sample extracts from the data, the codes attached to them, and the theme to which they belong.

Table 1. Sample coding

Theme	Sub-theme	Codes	Extract
Affordances of ChatGPT feedback	Practicality	Time efficient Easy to use	Getting feedback from ChatGPT is much easier and faster.
Constraints of ChatGPT feedback	Inconsistency	Varying responses Inconsistent	When you ask the same questions in the same way, it can give different answers. Its current model isn't super consistent.

Note: The given extracts are from PTs 5 and 3.

INTEGRATION OF CHATGPT INTO THE FEEDBACK PROCESS

The process of ChatGPT's integration into the feedback was guided by Warschauer et al.'s (2023) AI literacy framework, as discussed above. For the first seven weeks of the course, the usual procedure was followed (discussion of the given theme, introduction to an essay genre > first draft > peer feedback > second draft > teacher feedback > final draft) for 'comparison and contrast' and 'cause and effect' essays.

ChatGPT began to be used in the eighth week when PTs focused on argumentative essay writing. Following their discussion of the relevant ELT theme, PTs were typically engaged in writing their first draft based on that theme. When their drafts were complete, they received a training session on

how to use ChatGPT for feedback on their writing. The content of the training included the following (Warschauer et al., 2023):

- defining AI and overviewing different AI applications,
- introducing ChatGPT by Open AI,
- addressing concerns about ChatGPT in writing, and
- demonstrating how to use ChatGPT to get feedback on writing.

The training emphasized constructing effective prompts to get the most useful responses from ChatGPT Version 3.0. Prior to the training, the researchers experimented with several versions of prompts based on the evaluation rubric to maximize the quality of response PTs could obtain from ChatGPT and prepared a set of prompts for PTs to elicit detailed feedback from ChatGPT. The initial prompt started with the following orientation:

Hello, I am a student of English Language Teaching and I take an academic writing course. I wrote an argumentative essay. It is about the use of the mother tongue in foreign language classrooms. There is a rubric to evaluate my essay. Here are the questions in the rubric.

The prompt followed with specific questions from the rubric, such as the following ones focusing on the introduction paragraph:

Does the essay start with interesting and/or relevant hooks? What types of hooks are used? Are the hooks effective? Why or why not?

Which sentence in the essay is the thesis statement? Does the thesis statement include a clear statement of the writer's stance on the issue?

The rubric on which the instructions are based is the same one PTs used for peer feedback and the instructor used for teacher feedback. Under the supervision of the course instructor, one of the researchers of this study, the PTs received feedback from ChatGPT for their essays during class time. They were encouraged to rephrase their prompts for better feedback if unsatisfied and engage in a dialogue with ChatGPT to refine its output. PTs revised their essays using feedback from ChatGPT and submitted the second draft for teacher feedback.

Following the same procedure as described above, students used ChatGPT once again for feedback on their definition essay writing task. Therefore, in total, the participants received feedback from ChatGPT for two separate writing tasks. Each of these feedback sessions took three consecutive lessons (150 minutes).

FINDINGS

PTs' PERCEPTIONS OF CHATGPT AS A FEEDBACK TOOL

When PTs discussed ChatGPT as a feedback tool, they focused on its affordances and constraints, appearing as two major themes in the data. Each theme was further divided into several subthemes.

Affordances

The affordances of ChatGPT as a feedback tool encompassed four key aspects: quality feedback, practicality, interactivity, and adaptability.

Quality feedback. PTs' discussion of quality ChatGPT feedback emphasized its depth and effectiveness. The depth of ChatGPT feedback was evidenced by its coverage of various aspects of writing, including surface-level issues such as grammar, vocabulary, or spelling and global-level issues like content and organization. PTs were specifically impressed by ChatGPT's feedback on global-level issues. While feedback on the mechanics of language was "expected" (PT5), they found the detailed comments on genre-specific writing conventions, development of ideas, or coherence of the essay to be particularly enriching. As PT8 shared, "ChatGPT not only shows spelling and punctuation errors

but also gives ideas to improve the content. In my argumentative essay, it gave specific ideas to make my discussion stronger.” Similarly, PT6 noted, “It offered a wealth of ideas that I could never think of myself. Once I asked how I could improve my title, it came up with many different suggestions.” PT4 pointed out how the feedback provided alternative perspectives and suggested effective examples to enhance her writing.

Practicality. PTs perceived obtaining feedback from ChatGPT as practical due to its ease of use, anytime, anywhere accessibility, and significant time-saving benefits. For example, PT3 mentioned how easily and effortlessly he could obtain feedback on his essay by simply writing a prompt with no further requirements. PTs emphasized the practicality of ChatGPT by referring to its straightforward, user-friendly interface as well. No advanced technical skills were needed to use it to get feedback. PTs also appreciated the convenience of being able to use ChatGPT anytime, anywhere, without any restrictions. PT4 indicated, “ChatGPT is always there. You can ask as many questions as you want. You don’t have to wait to ask for feedback, and it never gets tired of answering your questions.” ChatGPT’s ability to create immediate feedback was also favored by PTs. As PT2 put it, “I believe the most significant aspect of ChatGPT is its efficiency in saving time. You can see your mistakes in seconds.” PT1 also enjoyed immediate feedback, referring to the surprisingly fast feedback production.

Interactivity. PTs highlighted interactivity as another important aspect of ChatGPT. Interactivity refers to the responsiveness of the ChatGPT to student input and prompts, enabling a human-like dialogue. PT4 explained how she interacted with ChatGPT as follows:

When I ask detailed, to-the-point questions, ChatGPT offers very helpful suggestions. To go into more detail, I ask further questions. It is similar to conversing with a person; the better you explain yourself, the more useful responses you get (PT4).

Similarly, PT1 mentioned that interacting with ChatGPT resolved potential confusion and added that “Working with ChatGPT is enjoyable. Its ability to respond to my question makes me feel like it understands me as if it were a real person.” PTs also noted that ChatGPT offered unlimited communication opportunities. They could ask several questions without worrying about being rejected or judged by ChatGPT for their inquiries. As PT4 stated, their interaction with their peers and the teacher on their writing sample was limited due to time constraints. Plus, asking every question in her mind was not possible. The interactive nature of the tool helped to improve this limitation.

Adaptability. PTs also emphasized ChatGPT’s adaptability, referring to its ability to be customized through prompting. They said the feedback could be modified to better meet their specific preferences, needs, and learning goals. Recalling a specific instance, PT5 shared that on one occasion, the language of feedback ChatGPT gave on her essay was too formal and complex. She prompted ChatGPT to simplify the feedback and use a conversational tone, which resulted in a more comprehensible response. PT3 also said:

ChatGPT can communicate with you using any tone you prefer, addressing you as you desire. I believe you just need to grasp its language and learn how to customize it. Then, you get the best response to your queries.

Constraints

PTs’ responses revealed their perceptions of occasional inconsistencies, dependence on the quality of prompts, absence of a human-like voice, and the risk of over-dependence on automated feedback as the constraints of ChatGPT as a feedback tool.

Occasional inconsistencies. PTs complained about ChatGPT’s different responses to the same prompts, challenging them to rely on ChatGPT for reliable and consistent feedback. For instance, PT1 explained, “Once, I prompted ChatGPT to comment on the same piece of my writing seven times. In one response, it said, ‘I think you have a mistake here.’ The other six times, it was like, ‘This part’s good.’” Similarly, PT3 stated, “When you ask the same questions in the same way, it can give

different answers. Its current model isn't super consistent." PT6 expressed a similar concern regarding ChatGPT's inconsistency, "First, ChatGPT said I didn't have any spelling or grammar mistakes but later suggested corrections."

Dependence on the quality of prompts. PTs recognized that the effectiveness of ChatGPT relied heavily on the user, emphasizing the significance of skillful prompting. For instance, PT5 explained that engaging with ChatGPT could prove fruitless unless the user clearly understands what they are specifically seeking: "You need to know the right question to ask. Some questions you ask might be too vague, so you need to clarify what you exactly expect from ChatGPT. Otherwise, it just keeps repeating the same things over and over." As pointed out by PT3, "You kind of need to learn its language. Otherwise, you won't get what you want." He recalled the following specific incident: "The first trial was too difficult. I tried to explain myself in several ways, but I failed to get the answers I wanted. I wasted a lot of time."

Absence of human-like voice. PTs discussed the robotic tone as another constraint, focusing on how it impacts the user experience by hindering engagement and comfort. For instance, PT3 said, "ChatGPT doesn't talk human-like, but rather robotic. It sounds artificial," and PT1 added, "We are used to human interactions in learning. Adapting to this robotic, non-human voice of ChatGPT isn't immediately comfortable."

The risk of over-dependence on automated feedback. PTs were also cautious about the risk of over-dependence on ChatGPT during the revision process. They expressed concerns about students failing to improve their writing ability, lacking in the development of creativity and critical thinking skills, and the potential loss of individual voice in their writing. PT7 noted that,

ChatGPT is useful as a facilitator. It offers diverse ideas to improve your essay, identify your mistakes, and help to improve your essay organization. But, if a student asks ChatGPT to do the revisions autonomously, then how would students' writing skills improve?

PT8 expressed the following comment:

ChatGPT can literally think and write for you. It might sound like a very big advantage for students, but in the long run, it might kill our creativity and critical thinking. So, teachers really need to think about how their students can get the most out of it without over-relying on it.

PT5 said, "When ChatGPT changes your sentences, it writes in a new style. It is not your sentence or your way of writing anymore."

COMPARISON OF CHATGPT FEEDBACK TO PEER AND TEACHER FEEDBACK

The second research question aimed to explore PTs' perceptions of ChatGPT feedback in contrast to peer and teacher feedback. Their discussion focused on both the feedback content (the product) and the feedback reception process. Several themes were identified in their discussions, including the reliability of the feedback, its potential impact on writing development, the practicality of obtaining feedback, interactivity, and recommendations for future practice.

Reliability

The PTs identified teacher feedback as the most reliable one, referring to its accuracy, relevancy, and depth.

Accuracy. To illustrate, PT5 stated, "I can trust the teacher blindly. I believe that the feedback given by him is 100% accurate. However, both with ChatGPT and peer feedback, some aspects might be misleading." PT4 expressed that when their peers offered corrections to their writing, they hesitated to determine if the offered correction was accurate. In contrast, PTs generally found the ChatGPT feedback accurate but sometimes felt the need to validate it due to the occasional inaccurate and inconsistent responses it produced.

Relevancy. PTs also found teacher feedback to be more relevant to their needs. Teachers' familiarity with individual students was expressed as a critical advantage over other forms of feedback. As PT3 expressed:

The teacher knows our level and knows where we should reach. That's why he can give very relevant, to-the-point feedback; he doesn't expect things beyond our capacity. ChatGPT, of course, doesn't know our age, educational level, or specific needs. This leads to perfectionist expectations in our writing.

Depth. Students also emphasized the reliability of feedback due to its depth. For example, they observed that peer feedback mostly addressed surface-level mistakes in their writing, often lacking support for content or idea development. In contrast, they found ChatGPT's feedback more reliable in addressing global issues due to its comprehensive insights. Teacher feedback was similarly favored for its thoroughness. As PT6 put it, "Even minor issues catch the teacher's attention – the things that neither ChatGPT nor us, students, can notice."

Impact on writing development

Thoroughness. PTs compared three types of feedback in relation to their potential impact on writing development, with a particular focus on thoroughness. Comprehensive feedback addressing multiple aspects of writing was perceived as a facilitator of quality writing. For PTs, teacher feedback was particularly beneficial due to its coverage of all aspects of writing in their texts and its relevance to their needs. Additionally, they found feedback from ChatGPT to be valuable. PT2 said, "ChatGPT approaches our queries from a very different perspective – a fresh one and gives a lot of ideas. This helps us view our writing in a new light." PT5 highlighted how ChatGPT suggested varied structures and vocabulary that she had not previously considered using in her writing. PT1 said, "The ChatGPT feedback on meaning was very useful. When I followed the suggestions, I could see how the content of my essay became richer." PT3 also said that feedback on the organization of his writing helped him better understand the structure of the genre he was following and thus improve it.

The practicality of obtaining feedback

Immediacy of feedback. The practicality of receiving feedback from different sources was linked to the immediacy of feedback, and ChatGPT's affordance in giving immediate feedback was noted as superior to other sources of feedback. PTs expressed that they did not have to wait for feedback as they would for teacher and peer feedback. For example, PT1 stated, "I see it more as a time-saving tool. When we did peer feedback, it took a lot of time. But now, with ChatGPT, we receive feedback within minutes, sometimes even seconds."

Directness. On the other hand, PT6 noted the potential necessity of asking numerous follow-up questions to ChatGPT for more accurate responses, which made it a less practical feedback tool: "To get valuable feedback from ChatGPT, we might need to ask a lot of questions, which takes a lot of time. But our friends can easily identify the issues in our essays and provide direct, to-the-point feedback."

Interactivity

Negotiation of meaning. In terms of interactivity, PTs held more positive views on peer and instructor feedback since the negotiation of meaning was easier with a human compared to an AI tool. Peer feedback was primarily valued for its human interaction. PT4 said in a peer feedback session – many issues were spontaneously discussed and resolved, making the solutions more memorable. Similarly, PT7 emphasized the critical role of negotiating meaning with peers to address writing problems. PT5 explained, "I've done feedback sessions with people I've never met before. As long as your peer is clear in his or her comments, you understand the message. Or you just ask for clarification." PT7 also referred to the negotiation of meaning and said:

In a peer feedback session, your friend understands how you think and what you're focusing on. When you don't understand a comment, you can negotiate it easily.

Accepting that interacting with ChatGPT is not as efficient as a person, PT3 thought this was natural and something expected: "The inability to grasp what's being mentioned, as compared to human interaction, seems normal to me. When interacting with a person, you have facial expressions and tone of voice, which make it much easier to understand the intended meaning."

Benefits for feedback providers. PTs also discussed the aspect of interactivity from the feedback provider's perspective. They highlighted the gain they derived from giving feedback to their peers. For example, PT3 noted that reviewing a peer's essay and discussing ways to improve it helped in realizing and fixing their own mistakes as well. Similarly, PT8 stated that engaging in discussions about a peer's essay showed them how much they were aware of writing issues and improved their self-confidence in L2 writing.

Recommendations for future practice

Complementary use of ChatGPT, peer, and teacher feedback. Finally, PTs stated their preference for using these three feedback sources in future writing tasks. There was a consensus among students that the best practice in L2 writing assessment was the use of three complementary feedback types to maximize their positive impact on writing. Comparing ChatGPT to peer feedback, PT6 said,

They should be used hand-in-hand. Sometimes, our peers might not give adequate feedback or might ignore the areas where we expect feedback. In such cases, we can use ChatGPT. And if we're uncertain about areas ChatGPT highlights, we can then present those to our peers.

PT7 explained:

For me, the feedback from the instructor ranks first. Both peer feedback and ChatGPT would come secondary because neither is perfect. With peer feedback, we capture the element of social interaction, but since peers may not always have the expertise, the quality of feedback might not be as high as ChatGPT. On the other hand, even though we get quality feedback from ChatGPT, it takes away social interaction. Combining the strengths of each would lead to the best practice.

PT1 also emphasized the need to integrate all three feedback types, stating, "If I were to design my own writing curriculum, I'd integrate all three."

Effective use of ChatGPT. While PTs appreciated the valuable role of ChatGPT as a feedback provider, they expressed some concerns about its use as a content generator in the writing practice. The following extract shows how they were concerned about the responsible use of ChatGPT:

If I were the teacher, I wouldn't ask students to write an entire essay using ChatGPT. Instead, perhaps they could be given a topic and then asked to use ChatGPT for brainstorming. They could choose ideas from the suggestions provided and integrate them into their writing. In essence, I'd prefer that they use ChatGPT as a guiding tool. But of course, I wouldn't expect them to write a full essay with it. (PT7)

To ensure effective integration, PT4 recommended that students be provided with training on how to utilize feedback for their writing. PT8 added, "Given the growing popularity of ChatGPT, I think we'll inevitably need to adapt to it and learn, as soon as possible, how to use it effectively, both as a student and teacher candidate." A similar comment was also made by PT3: "Instead of thinking about how we can avoid it, I believe it's more logical to think how we can integrate and get accustomed to it."

DISCUSSION AND CONCLUSION

Our findings revealed that PTs perceived ChatGPT as a valuable feedback tool for L2 writing, particularly noting its quality feedback, practicality, interactivity, and adaptability. These affordances of ChatGPT have been widely recognized in the L2 writing literature (e.g., Barrot, 2023; Lin & Chang, 2020; Stokel-Walker, 2022; Su et al., 2023). While the instructor or the peers might not always be available to provide on-time and extensive feedback, ChatGPT could fill in this gap and facilitate the individual learning process for students. Its interactive and adaptable nature allows users to gain expertise in manipulating and accessing the kind of feedback they are seeking. Therefore, students gain the opportunity to review and refine their writing before sharing it with anyone and detect otherwise unnoticed errors thanks to AI-generated feedback. Given the critical role of feedback in L2 writing and ChatGPT's potential to offer high-quality feedback on mechanics, styling, content, and organization, its integration as an automated evaluation tool is seen as promising for L2 learners' writing development (Guo & Wang, 2024). The participant students' perceptions of the positive impact of ChatGPT feedback on their writing further support this view.

The concerns that the PTs expressed about ChatGPT feedback, such as inconsistencies and inaccuracies, imply that AI tools like ChatGPT may not yet be completely reliable, emphasizing the need for students to be critical of responses generated by AI. When seeking feedback from an AI tool, students should make critical judgments regarding the feedback and decide how much value and trust they should put into it. Not all responses from AI tools will be equally useful for students. The PTs' comments revealed their critical perspective when evaluating the feedback generated. They experimented with varied prompts to get different feedback on the same piece of writing and then chose the most relevant and useful responses. This behavior indicates that the PTs acted autonomously as active agents in their learning processes to exploit the potential of ChatGPT to improve their writing, providing support for the framework of Winstone and Carless (2020) on new feedback thinking. The framework also emphasizes the role of teachers in helping students engage in productive feedback interactions. In this study, the training designed by the researchers following the principles of the AI literacy framework by Warschauer et al. (2023) contributed to the effective implementation of ChatGPT as a feedback provider. The findings also showed how PTs, with time, gained expertise in using ChatGPT and how they valued the initial training they had received.

It was further observed that PTs were sensitive about the responsible use of AI tools in writing instruction. On the one hand, they were aware that ignoring and keeping away from AI would become a disadvantage for them as future writers and teachers (Warschauer et al., 2023). On the other hand, they were worried about becoming too dependent on AI tools when writing. Their concerns about becoming over-reliant on such tools imply that the integration of AI tools into L2 writing instruction should be handled with care based on informed decisions and situated practice (Godwin-Jones, 2022). The capabilities of such tools should be exploited in ways that encourage learning. This requires careful planning on the side of teachers and course planners, who should seek the optimal ways to integrate AI in L2 writing instruction and make sure that AI feedback helps learners see the weaknesses in their writing and offer useful solutions to improve these areas. However, they should avoid creating an environment where AI does all the critical work instead of learners, such as writing content from scratch, since this will cost learners valuable opportunities to practice and improve.

Another important finding of the present study concerned how the PTs positioned ChatGPT feedback in relation to other forms of feedback. They viewed different sources of feedback as complementary. Students distinguished ChatGPT not only because of its speed and extensiveness but also because of its motivating effect that promotes self-efficacy and autonomy (Wilson & Roscoe, 2020). On the other hand, they associated instructor feedback with personalization and peer feedback with socialization. Students valued different aspects of each feedback source and emphasized their combined use for the best results. This implies that the use of ChatGPT for feedback is not seen as an

alternative to other sources of feedback; rather, it functions as a facilitator that has a unique contribution to their L2 writing development.

Overall, PTs' perceptions of ChatGPT as a feedback tool are positive. Following their recommendations, it can be concluded that, with careful planning and appropriate preparation, ChatGPT feedback can be effectively utilized in higher education contexts for L2 writing instruction, along with teacher and peer feedback. At this point, it is not possible to estimate the limits of what AI will be able to do in the field of L2 writing education. As advancements in AI continue, it will become more essential to accept students' increasing access to advanced writing assistance and seek ways to offer suitable guidance (Carvalho et al., 2022).

The present study has a number of limitations that could pave the way for future research directions. First, the data were self-reported due to the nature of the study. Further research utilizing different data collection tools may provide valuable insight into students' experiences with ChatGPT as a feedback tool. Second, the study only focused on the perceptions of the PTs, excluding the instructors. Thus, future studies may further examine how teachers perceive ChatGPT as a feedback source. Third, the participants were highly proficient English learners. Hence, future research might focus on the experiences of language learners with varying degrees of proficiency in English. Fourth, the students used ChatGPT feedback for only two essay types: definition and argumentative. They observed varying feedback quality between these types. Therefore, another research might compare feedback across different writing genres. Finally, it would be interesting for future research to conduct a comparative analysis among different AWE tools to identify and compare their respective impact on L2 writing.

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APPENDIX

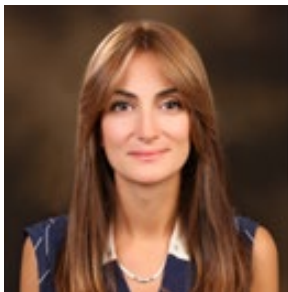
Guiding Questions of Interview 1

1. What kind of feedback did you get from your peers?
2. How did you feel about the feedback your peers gave?
3. To what extent did the peer feedback meet your expectations?
4. Was there any feedback that you found particularly useful or useless? Why?
5. What are the positive or negative aspects of giving and receiving peer feedback?
6. How do you think giving and receiving peer feedback affected your writing development?
7. How effective do you think you were in giving feedback to your peers?

Guiding Questions of Interview 2

1. What kind of feedback did you ask ChatGPT for in your writing assignments?
2. How did you feel about the feedback you received from ChatGPT?
3. To what extent did the ChatGPT feedback meet your expectations?
4. Was there any feedback that you found particularly useful or useless?
5. What are the positive and negative aspects of receiving feedback from ChatGPT?
6. How did receiving feedback from ChatGPT affect your writing development?
7. In what ways do you think ChatGPT feedback could be integrated into future L2 writing courses?
8. Would you consider using ChatGPT as a feedback tool in the future as a teacher? Why or why not?
9. How would you compare receiving feedback from your peer, teacher, and ChatGPT?

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