Short-Term Effects of ChatGPT-Assisted Instruction on Professional Email Writing Among Senior High School Learners

Abstract

Professional email writing is an essential workplace communication skill, yet many senior high school students struggle with appropriate structure, tone, and clarity in formal digital correspondence. This study examined the short-term effects of ChatGPT-assisted instruction on the professional email writing performance of Grade 12 Senior High School students in a private school in Lapu-Lapu City, Cebu, Philippines. Using a quasi-experimental one-group pretest–posttest design, seventy-five (75) students completed professional email writing tasks before and after a brief instructional intervention integrating guided use of ChatGPT. Writing performance was assessed using an analytic rubric evaluating email structure, message clarity, professional tone, and language accuracy. Data were analyzed using descriptive statistics, paired samples t-tests, and effect size computation. Results indicated a statistically significant improvement in overall professional email writing performance following the intervention, with gains observed across all assessed components. Email structure and professional tone showed the greatest improvement, while clarity and language accuracy also demonstrated meaningful progress. These findings suggest that short-term, teacher-guided integration of ChatGPT can effectively support the development of workplace-oriented writing skills among senior high school learners, contributing to research on AI-assisted writing instruction in secondary professional communication contexts.

Keywords: *ChatGPT-assisted instruction, professional email writing, senior high school students, workplace communication, AI in writing education*

Introduction

In contemporary academic and professional contexts, effective written communication has become an essential life skill, particularly in digitally mediated environments where professional emails serve as a primary mode of interaction. Within the framework of English for Academic and Professional Purposes (EAPP), senior high school students are expected to develop the ability to produce formal, audience-appropriate, and purpose-driven texts that meet both academic and workplace demands. For Grade 12 students approaching graduation, the ability to compose clear, polite, and well-structured professional emails is increasingly important as they prepare for higher education, internships, employment, and workplace communication. However, despite its practical relevance, professional email writing remains a challenging skill for many learners, especially in contexts where formal writing instruction has traditionally emphasized academic essays rather than workplace-oriented genres (Sujinpram & Wannaruk, 2024).

Professional email writing requires a distinct set of competencies emphasized in EAPP instruction, including appropriate tone, concise organization, audience awareness, and adherence to conventional formats such as subject lines, greetings, and closings. Senior high school students often struggle with these conventions, producing messages that are overly informal, unclear in purpose, or grammatically inaccurate (Barbour, 2025). These difficulties are particularly evident among learners transitioning from classroom-based academic writing to real-world professional communication tasks, where expectations differ significantly from traditional school writing. Consequently, there is a growing need for instructional approaches within the EAPP curriculum that explicitly address professional writing genres and provide learners with structured support during the writing process.

In recent years, artificial intelligence (AI) tools have emerged as potential supports for writing instruction, offering learners immediate feedback, exemplars, and language scaffolding aligned with EAPP objectives. Among these tools, conversational AI systems such as ChatGPT have gained attention for their capacity to generate contextually appropriate text, suggest revisions, and model effective writing practices. In educational settings, ChatGPT has been explored as a supplementary instructional aid that can assist students in planning, drafting, and revising written work (O'Brien-Melford & Gador, 2025). While existing studies have demonstrated the potential of AI-assisted instruction to enhance various forms of academic writing, there remains limited

empirical evidence on its effectiveness in supporting professional and workplace-oriented genres central to EAPP, particularly at the senior high school level.

Within the Philippine educational context, Senior High School curricula emphasize the development of communication skills that respond to both academic and practical demands, as articulated in the EAPP subject. Grade 12 students are expected to demonstrate readiness for life after high school, including both tertiary education and employment (Department of Education, 2020). Despite this expectation, many learners have limited exposure to authentic professional writing tasks, such as composing emails addressed to supervisors, employers, or institutional authorities. Instruction in professional email writing is often constrained by limited instructional time, large class sizes, and the need for individualized feedback which are factors that may restrict students' opportunities to refine their EAPP-related writing competencies.

ChatGPT-assisted instruction presents a promising approach to addressing these instructional challenges within EAPP classrooms (Diego & Protacio, 2025). By providing guided prompts, model responses, and language suggestions, ChatGPT can function as a supplementary writing partner that supports learners during short-term instructional interventions (Levine et al., 2024). When integrated responsibly and pedagogically, AI-assisted tools may help students improve key components of professional email writing emphasized in EAPP, including structure, clarity, tone, and grammatical accuracy. However, concerns remain regarding the pedagogical value of such tools, particularly whether observed improvements reflect genuine skill development rather than surface-level editing or overreliance on AI-generated text (Ghafouri et al., 2024). These concerns highlight the importance of empirically examining the short-term instructional effects of ChatGPT within controlled classroom settings.

Although numerous studies have examined the integration of artificial intelligence in classroom instruction, relatively little attention has been given to its application within specific workplace-oriented writing genres associated with EAPP. Despite the growing interest in AI-assisted writing instruction, research focusing on senior high school learners in private secondary institutions remains limited. Existing studies have largely concentrated on university students or adult learners, leaving a gap in understanding how younger learners—particularly those at the threshold of workforce entry—respond to AI-supported writing instruction (Duong et al., 2024; Khampusaen, 2025; Mali, 2025). Furthermore, professional email writing has received minimal empirical attention as a distinct instructional genre within EAPP research, despite its critical role in students' future academic, institutional, and professional communication.

To address these gaps, the present study investigates the short-term effects of ChatGPT-assisted instruction on professional email writing among Grade 12 Senior

High School students in a private school in Lapu-Lapu City, Cebu, Philippines. Using a quasi-experimental one-group pretest–posttest design with seventy-five (75) respondents, the study examines whether exposure to ChatGPT-assisted instructional activities leads to measurable improvements in students' professional email writing performance. Specifically, the study focuses on changes in overall writing quality and in selected writing components emphasized in EAPP, including email structure, message clarity, professional tone, and language accuracy.

By situating professional email writing within an AI-assisted instructional framework grounded in EAPP, this study contributes to the growing body of literature on technology-enhanced language learning and workplace communication pedagogy. The findings are expected to offer practical insights for senior high school teachers, curriculum designers, and educational institutions seeking to integrate AI tools responsibly into EAPP instruction. Ultimately, the study aims to demonstrate how ChatGPT-assisted instruction can be leveraged not as a replacement for teaching, but as a pedagogical support that enhances learners' preparedness for real-world written communication.

Research Questions

This study sought to examine the short-term effects of ChatGPT-assisted instruction on the professional email writing performance of Grade 12 Senior High School students. Specifically, the study addressed the following research questions:

1. Is there a significant difference between the pretest and posttest professional email writing scores of Grade 12 Senior High School students following ChatGPT-assisted instruction?

2. What improvements are observed in professional email writing in terms of:
   2.1 email structure;
   2.2 message clarity;
   2.3 professional tone; and
   2.4 language accuracy following ChatGPT-assisted instruction?

3. To what extent does ChatGPT-assisted instruction enhance the overall quality of professional email writing among Grade 12 Senior High School students?

Research Methodology

Design

The study adopted a quasi-experimental one-group pretest–posttest research design to examine the short-term instructional effects of ChatGPT-assisted instruction on students' professional email writing performance. In this design, the same group of students was assessed before and after exposure to a structured instructional intervention that integrated guided use of ChatGPT. This approach was considered appropriate for a classroom-based setting where random assignment to separate control and experimental groups was not practical. The design allowed for a direct comparison of students' writing performance prior to and following the intervention, thereby enabling the measurement of learning gains attributable to the instructional strategy. By focusing on within-group changes, the design provided a practical and effective means of evaluating the immediate impact of ChatGPT-assisted instruction on professional email writing skills.

Participants

The participants of the study were seventy-five (75) Grade 12 Senior High School students enrolled in a private school in Lapu-Lapu City, Cebu, Philippines. The respondents were selected using purposive sampling, as they were currently taking the subject *English for Academic and Professional Purposes (EAPP)*, a course that emphasizes formal written communication and workplace-oriented language skills. Grade 12 students were considered appropriate for this study because they are expected to demonstrate proficiency in professional and academic communication in preparation for higher education or entry into the workforce. Participation in the study was voluntary, and the inclusion criteria required that participants be Grade 12 students officially enrolled in the EAPP subject at the time of the study.

Environment

The research was conducted in a private Senior High School located in Lapu-Lapu City, Cebu, Philippines. The institution provides a structured academic environment and is equipped with essential digital infrastructure, including internet connectivity and access to computer-based or mobile learning devices, which support technology-enhanced instruction. The school implements a standard Senior High

School curriculum aligned with national educational guidelines, including the *English for Academic and Professional Purposes (EAPP)* subject.

The instructional intervention was carried out during regular class hours to ensure minimal disruption to routine teaching and learning activities. This setting allowed ChatGPT-assisted instructional tasks to be integrated naturally within the existing curriculum framework and classroom practices. Conducting the intervention in a real classroom context enhanced the ecological validity of the study by reflecting authentic instructional conditions under which professional email writing skills are typically taught and developed.

Instrument

Professional email writing performance was assessed using an analytic writing rubric adapted for workplace-oriented email communication. The rubric evaluated students' written outputs across four key components: email structure, which examined the use of subject lines, appropriate openings and closings, and logical organization of content; message clarity, which focused on the clarity of purpose, conciseness, and coherence of ideas; professional tone, which assessed politeness, formality, and audience appropriateness; and language accuracy, which evaluated grammar, spelling, punctuation, and sentence construction. Each component was rated on a standardized scale, with higher scores indicating stronger writing performance. The same rubric was applied to both the pretest and posttest to ensure consistency and comparability in measurement.

Procedure

The study was conducted in three phases: pretesting, instructional intervention, and posttesting. During the pretest phase, students were asked to compose a professional email based on a workplace-related scenario (e.g., writing to a school administrator or requesting information from an office). The task was completed independently without the use of ChatGPT or other AI tools. Following the pretest, students participated in a short-term ChatGPT-assisted instructional intervention focused on professional email writing. The instruction included an overview of professional email conventions, guided demonstrations on structuring emails, and supervised use of ChatGPT as a writing support tool. Students were shown how to use ChatGPT responsibly for drafting assistance, revising tone, improving clarity, and correcting language errors, while being reminded that the final output must reflect their own understanding and judgment. In the posttest phase, students completed a parallel

professional email writing task under similar conditions as the pretest. ChatGPT was not used during the posttest to ensure that performance gains reflected learning outcomes rather than direct AI-generated output.

Data Analysis

Data were analyzed using appropriate inferential and descriptive statistical techniques. Mean scores and standard deviations were computed to describe students' professional email writing performance before and after the intervention. A paired samples t-test was employed to determine whether there was a statistically significant difference between pretest and posttest scores. Component-level mean gains were also examined to identify which aspects of professional email writing demonstrated the greatest improvement. Effect size was calculated using Cohen's d to determine the magnitude of the instructional effect.

Results and Discussion

This section presents and discusses the results of the study examining the short-term effects of ChatGPT-assisted instruction on the professional email writing performance of Grade 12 Senior High School students. Each set of results is introduced, presented in tabular form, and discussed in relation to existing literature on AI-assisted writing, professional communication, and English for Academic and Professional Purposes (EAPP).

Overall Professional Email Writing Performance

To establish a baseline understanding of students' professional email writing performance and to determine whether any observable changes occurred following the instructional intervention, descriptive statistics were computed for the pretest and posttest scores. This initial analysis serves as a foundational step in examining the effectiveness of ChatGPT-assisted instruction, as it allows for a direct comparison of students' writing performance before and after exposure to the intervention. By examining changes in mean scores and variability, the analysis provides insight into whether students demonstrated measurable improvement in their ability to compose professional emails that are appropriately structured, clear in purpose, and suitable for academic and workplace communication contexts. The descriptive statistics for students' pretest and posttest professional email writing scores are presented in Table 1.

Table 1
Descriptive Statistics of Pretest and Posttest Professional Email Writing Scores

Test	M	SD
Pretest	11.74	2.06
Posttest	14.93	1.99

**Maximum possible score = 20.*

As shown in Table 1, students demonstrated a clear improvement in professional email writing performance following the instructional intervention. The increase in the mean score from 11.74 in the pretest to 14.93 in the posttest indicates that, on average, students were able to produce higher-quality professional emails after participating in ChatGPT-assisted instruction.

This improvement suggests enhanced competence in applying key features of professional email writing, including clearer organization, more appropriate tone, and greater attention to formal writing conventions (Polakova & Ivenz, 2024).

In addition to the increase in mean scores, the relatively similar standard deviations for the pretest and posttest suggest that the improvement was not limited to a small subset of students but was observed across the group as a whole. This pattern indicates that the instructional intervention may have supported learners with varying levels of initial writing proficiency, contributing to more consistent performance among students (Pallant, 2020).

The overall gain in scores reflects meaningful progress in students' readiness to engage in professional written communication, particularly within academic and institutional settings emphasized in senior high school instruction (Song & Song, 2023; Wendimu & Gebremariam, 2024).

Taken together, the descriptive results presented in Table 1 provide preliminary evidence that ChatGPT-assisted instruction had a positive influence on students' professional email writing performance. These findings establish a strong basis for further statistical analysis and component-level examination, as they demonstrate that observable improvements occurred following the instructional intervention.

Statistical Significance of Pretest–Posttest Differences

While the descriptive statistics indicated an improvement in students' professional email writing performance after the instructional intervention, inferential analysis was necessary to determine whether this improvement was statistically meaningful rather than the result of random variation. Inferential testing allows for a more rigorous examination of whether the observed changes in scores can be attributed to the instructional approach employed in the study. To address this, a paired samples t-test was conducted to compare students' pretest and posttest scores, as the same group of participants completed both assessments. The results of the paired samples t-test comparing pretest and posttest professional email writing scores are presented in Table 2.

Table 2

Paired Samples t-Test Comparing Pretest and Posttest Professional Email Writing Scores

Comparison	Mean Difference	t	df	p
Posttest – Pretest	3.19	11.27	74	< .001

As shown in Table 2, the paired samples t-test revealed a statistically significant difference between pretest and posttest scores. The mean difference of 3.19 points indicates a substantial improvement in students' professional email writing performance following the instructional intervention. The large t-value further suggests that the magnitude of this difference was strong relative to the variability in scores.

The statistically significant result confirms that the improvement observed in students' writing performance was unlikely to have occurred by chance alone. Instead, the findings suggest that the instructional intervention played a meaningful role in enhancing students' ability to compose professional emails (Capalac, Mapo, & Magbanua, 2025; Alnemrat et al., 2025).

From an instructional perspective, the significant pretest–posttest difference highlights the potential of structured, technology-supported writing instruction to improve students' performance in professional communication tasks (Biju & Vijayakumar, 2023; González-Laguna et al., 2024). The finding also reinforces the importance of using inferential analysis alongside descriptive statistics, as it strengthens the validity of conclusions drawn about the impact of instructional interventions.

Overall, the results presented in Table 2 provide strong statistical evidence that ChatGPT-assisted instruction contributed to improvements in professional email writing among the participating Grade 12 students.

Magnitude of the Instructional Effect

While statistical significance indicates whether an observed difference is likely to be genuine, it does not fully explain the practical importance of that difference. To better understand the educational impact of the instructional intervention, an effect size analysis was conducted. Effect size provides information about the magnitude of the improvement in students' professional email writing performance, allowing for interpretation beyond statistical significance alone. This analysis is particularly important in educational research, as it helps determine whether observed gains are meaningful in real instructional settings. To assess the strength of the improvement from pretest to posttest, Cohen's d was computed based on students' professional email writing scores. The results of the effect size analysis are presented in Table 3.

Table 3

Effect Size (Cohen's d) for Pretest–Posttest Professional Email Writing Scores

Measure	**Cohen's d**	**Interpretation**
Overall Writing Performance	1.30	Large

As shown in Table 3, the computed Cohen's d value of 1.30 indicates a large effect size. This result suggests that the improvement in students' professional email writing performance following the instructional intervention was not only statistically significant but also educationally substantial. A large effect size reflects a strong instructional impact, indicating that the difference between pretest and posttest performance represents a meaningful shift in students' writing ability rather than a marginal or trivial gain.

The magnitude of the effect implies that the instructional intervention had a pronounced influence on students' ability to apply professional email writing conventions, including structure, tone, clarity, and language use (Nguyen & Truong, 2024). This level of improvement suggests that students were able to internalize key features of professional email writing within a relatively short instructional period (Alangari. 2025). Moreover, the large effect size indicates that the observed gains were consistent across the group, reinforcing the conclusion that the intervention was effective for learners with varying levels of initial proficiency.

From a pedagogical perspective, the effect size results strengthen the overall findings of the study by demonstrating that ChatGPT-assisted instruction can lead to meaningful learning outcomes in professional writing (Hongxia & Razali, 2025). Rather

than producing minor surface-level improvements, the instructional approach resulted in substantial gains that are likely to be noticeable in students' actual writing performance. As such, the results presented in Table 3 provide strong evidence of the instructional value of integrating guided AI-assisted activities into professional email writing instruction at the senior high school level.

Component-Level Improvements in Professional Email Writing

To gain a more detailed understanding of how ChatGPT-assisted instruction influenced specific aspects of professional email writing, a component-level analysis was conducted. While overall performance measures provide a general indication of improvement, examining individual writing components allows for a clearer assessment of which skills were most responsive to the instructional intervention. This analysis focused on four key components of professional email writing: email structure, message clarity, professional tone, and language accuracy. Together, these components represent essential competencies required for effective written communication in academic and workplace contexts. The pretest and posttest mean scores for each professional email writing component are presented in Table 4.

Table 4

Pretest and Posttest Mean Scores by Professional Email Writing Component

Writing Component	Pretest M (SD)	Posttest M (SD)	Mean Gain
Email Structure	2.81 (0.59)	3.97 (0.51)	1.16
Message Clarity	2.94 (0.55)	3.73 (0.53)	0.79
Professional Tone	2.71 (0.61)	3.95 (0.50)	1.24
Language Accuracy	3.28 (0.52)	3.91 (0.43)	0.63

**Each component was scored on a 0–5 scale.*

As shown in Table 4, improvements were observed across all four assessed components of professional email writing, indicating that the instructional intervention supported multiple dimensions of students' writing performance. The largest gains were recorded in professional tone and email structure, suggesting that students became more proficient in applying formal conventions and organizing their messages in ways that align with professional communication standards.

The substantial improvement in professional tone indicates that students developed a stronger awareness of appropriate levels of formality, politeness, and

audience sensitivity (Barrot, 2024; Jones, 2025). This suggests that the instructional activities effectively guided students in distinguishing between informal digital communication and professionally appropriate language use.

Similarly, the notable gain in email structure reflects improved adherence to conventional email formats, including the use of clear subject lines, appropriate openings and closings, and logically sequenced content. These improvements indicate that students gained greater control over the structural expectations of professional emails (Jovic & Mnasri, 2024).

Gains in message clarity and language accuracy, while smaller in comparison, were nonetheless meaningful. Improvements in message clarity suggest that students became more capable of expressing their purpose concisely and organizing ideas in a coherent manner. The more modest gain in language accuracy indicates progress in grammar, punctuation, and sentence construction, although these aspects of writing may require longer instructional periods and repeated practice to fully develop (Nazim, Mohammad, Alzubi, & Khan, 2025).

Overall, the component-level results presented in Table 4 demonstrate that ChatGPT-assisted instruction supported both surface-level and higher-order writing skills. The consistent improvement across all components suggests that the instructional intervention was effective in enhancing students' overall professional email writing competence, while also highlighting areas, such as language accuracy, that may benefit from extended instruction. These findings provide valuable insight into how AI-assisted instructional approaches can be used to target specific writing skills within senior high school professional communication contexts (O'Brien-Melford & Gador, 2025).

Conclusion and Pedagogical Implications

This study examined the short-term effects of ChatGPT-assisted instruction on the professional email writing performance of Grade 12 Senior High School students enrolled in a private school in Lapu-Lapu City, Cebu. The findings demonstrated that students showed meaningful improvements in overall professional email writing quality following the instructional intervention. Improvements were evident across key writing components, including email structure, message clarity, professional tone, and language accuracy, with particularly strong gains observed in structure and tone. These results indicate that guided integration of ChatGPT can support students' development of workplace-oriented writing skills within a relatively short instructional period.

The study contributes to research on technology-enhanced language learning by extending the application of AI-assisted instruction to professional email writing within

the context of English for Academic and Professional Purposes (EAPP) at the senior high school level. By focusing on a workplace-relevant genre, the study highlights the potential of AI tools to bridge the gap between academic writing instruction and real-world communication demands. Importantly, the findings suggest that improvements were not limited to surface-level features but also involved students' increased awareness of audience, purpose, and professional conventions.

From a pedagogical perspective, the results underscore the value of using ChatGPT as a scaffolding tool rather than as a replacement for instruction or independent student writing. When guided by clear instructional objectives, ChatGPT can help model appropriate email formats, demonstrate professional tone, and support students during drafting and revision processes. This is particularly relevant in EAPP classrooms, where instructional time is often limited and teachers may face challenges in providing individualized feedback to all learners.

The findings also suggest that AI-assisted instruction may be especially effective for teaching genre-specific and rule-governed aspects of writing, such as email structure and professional conventions. These areas are central to workplace communication yet are often underemphasized in traditional writing instruction. By integrating AI-supported activities into EAPP lessons, teachers can provide students with repeated exposure to authentic professional writing tasks while maintaining instructional control and ethical use guidelines.

Overall, this study demonstrates that ChatGPT-assisted instruction can enhance senior high school students' readiness for academic and professional communication when implemented thoughtfully within the curriculum. The results support the inclusion of AI-supported pedagogical strategies in EAPP instruction, with careful attention to teacher mediation, student accountability, and the development of transferable writing skills. As educational institutions continue to navigate the integration of AI technologies, this study provides evidence that such tools, when used responsibly, can enrich writing instruction and better prepare students for real-world communication demands.

Limitations and Recommendations

This study employed a one-group pretest–posttest quasi-experimental design without a control group, which limits the ability to establish strong causal relationships between ChatGPT-assisted instruction and observed improvements in professional email writing. In addition, the study was conducted in a single private Senior High School in Lapu-Lapu City, Cebu, which may limit the generalizability of the findings to other school contexts with differing resources and learner profiles.

The study also focused on short-term instructional effects and did not examine the long-term retention or transfer of professional email writing skills. Furthermore, assessment was limited to rubric-based evaluation of written outputs, without exploring students' writing processes or perceptions of AI-assisted instruction.

Future research is recommended to employ comparative or experimental designs, include more diverse educational settings, and examine long-term learning outcomes. Incorporating qualitative data may also provide deeper insight into how students engage with AI-assisted writing tools. Educators are encouraged to integrate ChatGPT within EAPP instruction using clear pedagogical and ethical guidelines to support the development of independent and transferable writing skills.

Ethical Considerations

Ethical approval for the study was obtained in accordance with institutional research guidelines. Participation was voluntary, and informed consent was secured prior to data collection. Students' identities were anonymized to ensure confidentiality, and all data were used solely for research purposes. The use of ChatGPT was guided by clear instructional and ethical guidelines to promote responsible and transparent engagement with AI tools.

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