



One Plus One Equals Three: The Synergy Between GenAI and Writing Centers in ESL Writing Development

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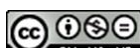
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ABSTRACT

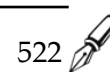
This article examined the intersection of Generative Artificial Intelligence (GenAI), writing centers, and English as a Second Language (ESL) student support. It posed the central research question: 'How can writing centers effectively integrate GenAI to support ESL student writers? The novelty of this research lies in its conceptual exploration of integrating GenAI into writing centers within a South African distance education (DE) context. The article addressed how this synergy can provide targeted, responsive, and culturally sensitive writing support designed for linguistically diverse students. The article conducted a comprehensive literature review and thematic synthesis, reviewing 35 scholarly sources to explore the theoretical and practical implications grounded in Sociocultural Theory (SCT). A conceptual design was employed to investigate the integration of GenAI in writing centers and its potential to support ESL students' academic writing development. Results indicate that GenAI tools act as cognitive mediators, providing scaffolded support that enhances writing fluency, grammatical accuracy, and learner autonomy, particularly beneficial for DE students who often face isolation and limited access to human tutors. However, concerns such as over-reliance on GenAI tools, epistemological bias, and digital inequities highlight the need for human-mediated guidance and ethical integration. The article concluded that despite existing challenges, GenAI holds transformative potential as a complementary tool to enhance writing instruction. It advances inclusivity, self-regulated learning, and academic success among ESL students in multilingual and digitally constrained contexts.



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INTRODUCTION

Over the years, it has been observed that ESL students continue to encounter numerous challenges in developing their writing skills, which include linguistic, cognitive, and cultural difficulties (Taye & Mengesha, 2024). Research has consistently shown that ESL students struggle with grammar, vocabulary, and sentence structure, as well as organizing ideas, developing arguments, and using appropriate academic discourse (Fareed et al., 2016). For instance, ESL students may have limited vocabulary, which can lead to difficulties in expressing multifaceted ideas and detailed thoughts (Pecorari, 2023). Leung (2014) shows that many ESL students struggle due to a lack of a strong foundation in the English language. This often results from their educational backgrounds, where many attended rural or public schools where their home language was predominantly spoken, both in and out of the classroom. In the South African context, students from schools where languages such as Sepedi, IsiXhosa, IsiZulu, Setswana,



Sesotho, Xitsonga, SiSwati, Tshivenda, and Afrikaans, to name a few, predominate may struggle with major English structures, including grammatical structures like verb tenses, subject-verb agreement, and clause formation (Makalela, 2016). According to Tshehla (2023), research indicates that using a student's mother tongue in the early years of primary school, ideally up to six years, supports cognitive development and concept formation.

I agree that mastery of one's mother tongue provides the strongest foundation. However, to fully prepare students for academic and professional opportunities, teachers in schools must also ensure that English is taken seriously by actively teaching the subject and minimizing over-reliance on mother tongue instruction. This must be done with consideration for the fact that these students will predominantly use English in their future careers. English has become central to various sectors, and currently, it appears to be the only viable option. Although career paths evolve, the importance of language remains steadfast (Sun, 2024). Many young people are increasingly viewing social media as a viable career option. As they progress, they recognize that English is the language of choice for online engagement and maximizing viewership ratings. A lack of English skills often results in awkwardly phrased sentences and unclear writing, issues commonly observed in students unfamiliar with English structures, particularly those who are ESL students (Leung et al., 2014). The challenges related to the English language persist even at the university level and beyond, mainly because a strong foundation was never established.

A significant mismatch remains between the expectations placed on ESL students in higher education and the support systems available to them within South Africa's distance learning institutions (HEIs). Although universities expect high-quality academic writing, many students enter tertiary education without the foundational language proficiency necessary to meet these expectations. Existing support mechanisms, such as virtual classes and downloadable materials, often fail to provide individualized assistance, especially for linguistically diverse students with limited digital access. As a result, many ESL writing students do not achieve the expected learning outcomes, which indicates the need for more responsive, adaptive, and inclusive forms of writing support. Therefore, this article aims to explore, through a literature review, the extent to which the integration of writing centers and AI-based generative intelligence can impact ESL students' academic writing skills and self-confidence, while identifying the perceived benefits and limitations of this combined approach from the perspective of ESL learners.

The novelty of this research lies in its conceptual exploration of how GenAI can be integrated into writing centers to provide targeted, responsive support personalized specifically to the needs of ESL students in a distance learning (DE) context. At the university level, ESL students often face challenges in adapting to academic writing conventions, including citation styles, formatting requirements, and genre-specific expectations. Therefore, as mentioned, factors such as language proficiency, cultural background, and prior educational experiences can also impact ESL students' writing abilities. For instance, Ahmed and Myhill (2016) echo that students from cultures that emphasize collectivism may struggle with the individualistic tone often required in academic writing. Moreover, studies have identified gaps in ESL students' academic writing proficiency, which include limitations in critical thinking, analysis, and evaluation. According to Cumming (2016), students' academic writing issues that originate from primary and secondary schooling often persist at the university level. These problems cannot be overlooked; instead, they necessitate practical interventions to reduce their impact.

This article is grounded in SCT, which posits that learning is a socially mediated process involving interaction with tools and more knowledgeable others (Nelson et al., 2025). Recent empirical studies have affirmed the effectiveness of AI-enhanced writing mediation in improving writing outcomes for EFL/ESL students (Maphoto et al., 2024), while others have highlighted the positive attitudes that ESL students exhibit toward using AI-based writing assistants (Kim et al., 2025). Furthermore, the concept of the Zone of Proximal Development (ZPD) becomes relevant when considering how AI-powered tools can provide just-in-time assistance, enabling students to perform at levels beyond their current independent capabilities.

A significant gap exists within the Department of English Studies at a South African DE university. Currently, there is no physical or online writing center to support students enrolled in the Academic Writing module, although plans are underway to launch an online center. However, over the years and currently, students rely on university-employed staff and e-tutors for online assistance. These tutors are frequently overburdened because a single tutor must support a large number of students due to high enrollment rates, with approximately 16,000 students registering each semester.

The researcher's attendance at the European Writing Centers Association (EWCA) conference in Ireland (June 11-14, 2024) catalyzed an exploration of the potential to integrate GenAI into writing centers to support ESL students who encounter academic writing challenges. This experience sparked a motivation to investigate how this synergy might build innovative approaches to teaching writing skills through supportive interventions. ESL students comprise the majority of the department's population and encounter specific challenges related to grammar and academic writing. In the South African context, common grammatical issues include tense inconsistency, subject-verb agreement errors, incorrect use of articles, preposition misuse, and problems with clause structure (Manurung et al., 2022). In academic writing, DE students struggle with plagiarism, inadequate thesis statements, disorganized paragraph structure, and insufficient supporting evidence (Maphoto et al., 2024).

According to Maphoto (2024), support is currently provided in academic writing modules through virtual classes, study materials, and podcasts or vodcasts. However, not all registered students have equal access to, or the ability to download, these resources. This support may be sufficient for some students; however, DE students require more comprehensive assistance, as a 'one-size-fits-all' approach is usually inadequate in a context that caters to students from diverse backgrounds across Africa. This led the researcher to investigate how GenAI tools can be explored as complementary resources to ensure the success of the writing center. To better illustrate the compositional trends, Figure 1 below presents a summary of the most reported writing challenges experienced by ESL students.

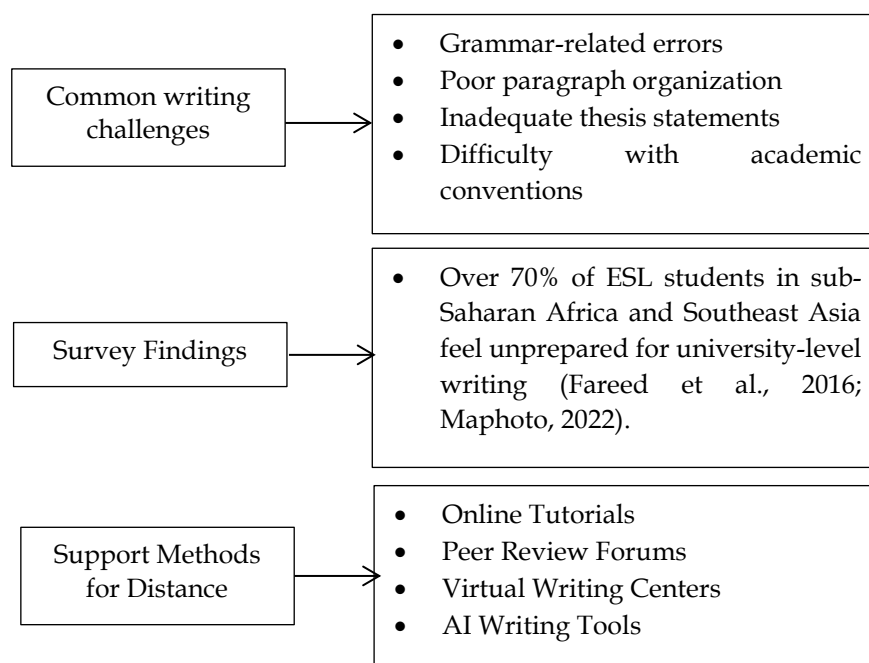


Figure 1. Writing challenges faced by ESL students and comparison of writing support methods

The integration of GenAI within the writing center may provide a promising solution to address the writing challenges faced by ESL students (Sun, 2024). Research suggests that integrating human support with AI-powered tools can significantly enhance academic writing skills. For instance, studies have demonstrated that AI-enhanced writing mediation can

effectively develop writing skills in EFL students (Hsiao & Chang, 2024). Additionally, research suggests that AI-powered writing assistance tools can improve the academic writing skills of EFL students, who also tend to exhibit positive attitudes towards using these tools. While acknowledging the potential benefits, it is also essential to recognize the limitations of utilizing AI-powered tools, such as ChatGPT, in academic writing support.

RESEARCH METHOD

This article adopted a conceptual research design, based on a comprehensive review and synthesis of existing literature rather than empirical data (Bozkurt et al., 2024; Hwang et al., 2021). The methodological approach involved document analysis, which drew from scholarly articles, books, and academic discussions related to GenAI, writing centers, and ESL student support. A total of 35 sources were reviewed and analyzed. Materials were selected using purposive sampling (Creswell & Poth, 2016), which prioritizes information-rich cases relevant to the central research question: 'How can writing centers effectively integrate GenAI to support ESL student writers?' Purposive sampling was chosen due to the qualitative and conceptual nature of the article. Unlike probability sampling, it focuses on relevance and depth rather than generalizability (Patton, 2015). Patton (2015) argues that this method allows researchers to select sources that best explain the phenomenon, an ideal fit for synthesizing diverse perspectives on GenAI integration in writing centers. This aligns with Hernán and Robins' (2016) emphasis on credibility and resonance over randomization or broad representation. The literature was thematically categorized into areas such as ESL writing challenges, writing center roles, educational technology integration, GenAI ethics, and sociocultural perspectives. Insights were synthesized to propose a conceptual framework for integrating GenAI in writing centers. As this is not an empirical study involving human participants, validity and reliability are established through the scholarly rigor, depth, and credibility of the selected literature. Bozkurt (2023) notes that while GenAI holds transformative potential, issues such as equity, access, and academic integrity remain critical in African higher education contexts. Figure 2 below presents a flowchart outlining the methodological structure and literature review process.

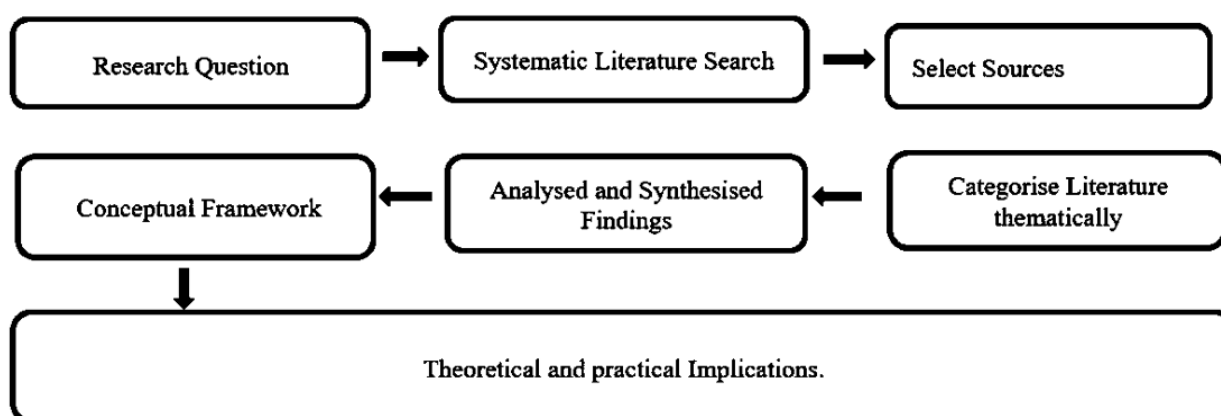


Figure 2. Flowchart for understanding the integration of GenAI within a writing center

The research adhered to a structured process, which is illustrated in a flowchart that guides readers from the research question through the conceptual framework and into future research directions. The article is grounded in theoretical concepts from SCT. It utilizes Lee's (2014) Vygotskian perspective to examine how GenAI can serve as a scaffold for facilitating second language writing.

RESULTS AND DISCUSSION

Results

Table 1 below presents the key findings related to RQ1, which explores the extent to which the integration of generative GenAI in writing centers impacts the academic writing skills and confidence of ESL students. The table organizes the findings into four main themes: improved accessibility and flexibility, personalized learning experience, language comprehension and vocabulary building, and student agency and empowerment, each supported by evidence from the literature and linked to SCT. These findings illustrate how AI-powered tools can act as cognitive mediators, scaffolding learning in ways similar to human tutors and providing flexible, designed support that enhances both proficiency and self-efficacy among ESL students.

Table 1. The impact of GenAI integration in writing centers on ESL students' writing

Theme	Evidence from the Literature	Alignment with the Theoretical Framework
Improved accessibility and flexibility	Gen AI supports distance students facing geographical and logistical barriers (Tomaskinova et al., 2024).	Students access scaffolding anytime, anywhere.
Personalized learning experience	Students benefit from adaptive AI that responds to their individual needs (Kim et al., 2024; Labi & Elsabry, 2025).	AI can act as a mediator in writing centers by bridging any gap between students, tutors, and lecturers.
Language comprehension and vocabulary building	AI tools such as Cognitive Tutor, Socratic by Google, and AI-powered dictionaries help users comprehend vast text and enhance their grammar (Schooshtari & Mir, 2014).	AI acts as a virtual peer or tutor. It provides gradual support to enhance learning.
Students agency and empowerment	Student develop autonomy through self-directed use of AI tools (Sun, 2024).	Self-directed use of AI tools empowers students to revise without constant lecturer input.

The integration of GenAI into writing centers shows significant potential for enhancing the academic writing skills and confidence of ESL students, mainly those who study in DE contexts. Based on SCT, GenAI tools act as cognitive mediators, similar to human tutors, and provide support for students within their ZPD. According to SCT, learning occurs through socially and technologically mediated interactions, where tools like GenAI provide scaffolded support designed to meet the evolving needs of individual students (Lee, 2014). For example, AI-powered platforms can provide immediate feedback on grammar, structure, and paraphrasing. This may enable students to engage in self-regulated revision and gradually internalize effective writing strategies (Shooshtari & Mir, 2014). This aligns with findings by Sun (2024) and Tomaskinova (2024), which highlight the importance of technology-enhanced support in addressing the unique challenges faced by ESL students in DE contexts. However, although GenAI enhances accessibility and flexibility, it cannot replace the essential role of human interaction. Lecturers and tutors remain vital in guiding students to critically interpret AI-generated feedback (Labib & ElSabry, 2025). The most effective model, therefore, combines technology-mediated scaffolding with human instruction, allowing students to benefit from both automated efficiency and pedagogical expertise (Lee, 2014). In this synergistic approach, where GenAI complements rather than replaces human support, the whole becomes greater than the sum of its parts, reflecting the metaphor 'One plus one equals three.'

Table 2, in contrast, addresses RQ2 and focuses on the challenges and limitations associated with integrating GenAI into writing centers for ESL students. It outlines barriers such as overreliance on GenAI, lack of contextual understanding, equity issues, and concerns around academic integrity. Each challenge is also examined through the lens of SCT, highlighting how these limitations may hinder socially mediated learning or disrupt the scaffolding process. Together, Tables 1 and 2 provide a balanced view of both the transformative potential and the

practical constraints of embedding GenAI within writing center practices for supporting ESL students.

Table 2. The perceived benefits and limitations of this combined approach from the ESL perspective.

Themes	Findings from the Literature	Alignment with the Theoretical Framework
Enhanced writing development	GenAI tools serve as mediational means, providing scaffolded support within students' ZPD and improving writing fluency, grammar, and structure (Lantolf & Poehner, 2014; Shooshtari & Mir, 2014).	This reflects SCT's emphasis on learning through mediation and scaffolding by tools or more knowledgeable others to support development within the ZPD.
Self-regulated learning	Students engage with AI-generated feedback to internalize writing strategies, and this promotes learner autonomy (Wong, 2024; Shooshtari & Mir, 2014).	Supports the idea of self-regulation and internalization of knowledge, key outcomes of mediated learning in SCT.
Digital literacy enhancement	Exposure to GeAI tools enhances digital literacy, a skill essential for both academic and professional success (Wong, 2024).	Reflects the sociocultural view that tools shape cognitive development and learning practices.
Cultural mediation potential	GenAI tools, such as chatbots, NLP tools, and writing analytics, can facilitate meaning-making and support collaborative writing practices (Bozkurt, 2023a).	Demonstrates how technology functions as a mediator of knowledge construction and social interaction, central to SCT.
Over-reliance on GenAI	Risk of superficial engagement or plagiarism when students copy content without attribution (Déri, 2025).	Contradicts the SCT principle that meaningful learning requires active participation, critical reflection, and co-construction of knowledge.
Need for human-mediated guidance	GenAI cannot fully replace the role of tutors in ensuring critical reflection and co-construction of knowledge (Shabanza, 2019).	Reinforces the importance of human-mediated scaffolding and dialogic interaction in the ZPD.
Ethical and policy gaps	Institutions need clear policies and training programs to guide the responsible use of GenAI in academic writing (Hsiao & Chang, 2024).	Highlights the need for institutional mediation and normative frameworks to regulate learning contexts.
Epistemological bias in GenAI tools	GenAI tools are often developed in Western contexts, potentially marginalising local languages and pedagogies.	Challenges the universality of tools and calls for localization, aligning with decolonial adaptations of SCT.
Localization needed	There is a need to localize GenAI tools and integrate indigenous knowledge systems to make them culturally relevant (Segun, 2024).	Supports the SCT principle that learning is culturally situated and must reflect students' lived experiences.
Tutor preparedness	Many tutors are hesitant due to a lack of familiarity or training, not opposition to innovation (Henderson & Corry, 2021).	Underlines the need for professional development to enhance tutors' ability to function as effective mediators of learning.

Discussion

GenAI in ESL Writing Development

From the ESL perspective, the integration of GenAI in writing centers presents a double-edged sword, providing transformative benefits while also posing notable challenges. SCT highlights that learning is a socially mediated process (Ahmed & Myhill, 2016; Vygotsky, 1978). AI-powered tools act as mediational means that can support students' writing development (Lee, 2014). These tools significantly enhance writing fluency, grammatical accuracy, and digital literacy by providing immediate, personalized feedback, an essential form of scaffolding within the ZPD (Lantolf & Poehner, 2014; Lee, 2014). For distance students, who often face isolation and limited access to human tutors, this immediacy helps bridge the gap, making writing instruction more interactive and responsive. Students can gradually internalize writing strategies and promote self-regulated learning and greater autonomy (Shooshtari & Mir, 2014; Wong, 2024) by engaging with AI-generated suggestions.

Equity, Ethics, and Cultural Relevance in GenAI Integration

The limitations cannot be overlooked. One of the most pressing concerns is the risk of over-reliance on GenAI, which may lead to superficial engagement with writing tasks or even instances of plagiarism if students copy content without proper attribution (Déri, 2025). From an SCT perspective, this highlights the importance of human-mediated guidance, as GenAI alone cannot ensure meaningful co-construction of knowledge or critical reflection (Shabanza, 2019). To minimize this, there is a need for clear institutional policies and ethical training programs that guide the responsible use of GenAI in academic settings (Hsiao & Chang, 2024). Another major limitation is the digital divide, especially in African higher education contexts, where many students lack reliable internet access or appropriate devices. Without equitable access to these tools, the potential for mediation and scaffolding remains unevenly distributed, reinforcing existing educational inequalities. Furthermore, there is growing concern that GenAI tools, often developed in Western contexts, may reinforce dominant epistemologies and marginalize local languages and pedagogies. From a decolonial perspective informed by SCT, this necessitates the localization of GenAI tools and the incorporation of indigenous knowledge systems in writing center practices (Segun, 2024). As SCT emphasizes the role of cultural context in shaping learning (Vygotsky, 1978), the integration of GenAI must go beyond technical functionality to reflect the linguistic and social realities of diverse students.

Staff Readiness for GenAI

Many tutors and lecturers remain hesitant or unprepared to explore GenAI technologies (Henderson & Corry, 2021). This resistance stems from a lack of familiarity or training rather than opposition to innovation. Given that SCT positions the tutor as a key mediator in the learning process, professional development programs must be prioritized to equip lecturers with the necessary competencies to guide students in exploring AI-assisted writing contexts (Poehner & Lantolf, 2023). Only through such intentional integration can the combined approach of GenAI and writing centres fulfill its potential as a culturally responsive, inclusive, and practical support system for ESL students.

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CONCLUSION

The findings show that integrating GenAI into writing centers provides a path toward more inclusive, personalized, and student-centered support. As GenAI technology evolves and expands into educational contexts, it is expected to help students with their learning tasks and transform academic writing services. Concerns exist around academic integrity, job displacement, and over-reliance on GenAI technologies. Therefore, GenAI should be viewed as a complementary tool that supports critical thinking and authentic learning rather than a replacement for human instruction. In addition, the integration of GenAI in writing centers can act as a cognitive scaffold that enhances ESL students' writing fluency, accuracy, and autonomy when used alongside human guidance. For this synergy to be effective and equitable, institutions must implement clear GenAI policies, provide staff training, localize GenAI tools, and address digital access gaps to ensure culturally responsive and ethically sound support. Despite its contributions, this study has limitations. The focus on ESL students in the South African DE context may limit the generalizability of the findings to other contexts or student populations. Furthermore, the study's reliance on existing literature introduces potential biases, as it may have focused on studies relevant to the South African DE context, which could affect the validity and reliability of the conclusions. These limitations can be addressed by future studies that collect primary data from writing centers that have integrated GenAI tools as support mechanisms. Moreover, future research should also explore the broader impact of educational technologies within writing centers, rather than focusing exclusively on GenAI. This approach is necessary, as pedagogical purpose rather than technological trends must guide the integration of technologies into writing centers.

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