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Digital applied linguistics: What is it and where are we in the GenAI era?

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Abstract

Digital Applied Linguistics (DAL) is an innovative and rapidly evolving field that integrates advanced technologies, particularly generative Artificial Intelligence (GenAI), into language education, acquisition, and research. This study first systematically synthesized research on language learning, teaching, and teacher development, as well as potential future directions in GenAI-driven Digital Applied Linguistics, drawing on 23 recent and relevant studies. Employing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, findings indicated that digital technologies, particularly GenAI, have significant potential to enhance and transform language learning and teaching. Additionally, the study adopted semi-structured interviews for three focal cases from mainland China, Hong Kong, and Macau. Enlightened from the framework of communities of practice, the results identified key dimensions of the future role of foreign language teachers in DAL, including teacher identity, role transformation, and belief change. Qualitative evidence further revealed that teacher agency functions as an outcome, shaped by the interplay between personal motivation and external support. Finally, the study presents opportunities and challenges while outlining prospective pathways for the continued exploration and reflection of DAL, positioning GenAI as a central and transformative force in this field.

Keywords: Digital applied linguistic; Artificial Intelligence; opportunities; challenges; exploration; reflection

Introduction

Digital Applied Linguistics (DAL) is rooted in the foundational principles of applied linguistics. It integrates emerging digital technologies, most notably generative artificial intelligence (GenAI), to open new frontiers in linguistic research and pedagogical practice (Dovchin, 2024). DAL is an inherently multidimensional and interdisciplinary domain. DAL explores language use within digital contexts by two core dimensions: theoretical inquiry and pedagogical application. That is, research in this field not only provides comprehensive descriptions and analyses of linguistic phenomena but also advances innovative approaches to language teaching and learning (Carrier et al., 2017). Therefore, with the accelerating development of GenAI technologies, DAL is undergoing a profound transformation.

GenAI has transformed research methods and pedagogical frameworks. It bridges theory and practice in applied linguistics. Yet, in higher education, a key challenge remains: how to use GenAI effectively to enhance language teaching and develop learners' linguistic competence (Derakhshan & Taghizadeh, 2025). Moreover, the application of GenAI in language education is primarily reflected in its transformative influence on classroom instruction and instructional resource development through the integration of technologies (Teng, 2025a). For instance, GenAI-assisted tools have become instrumental in supporting foreign language learning through intelligent dialogue systems, autonomous error correction, translation assistance, and digital resource sharing (Mizumoto et al., 2024; Mohebbi, 2025; Yao et al., 2025a). These technologies not only optimize the language learning process but also introduce new pedagogical tools and learning resources, thereby advancing the deep integration of GenAI and language education.

Although studies have highlighted the pedagogical affordances of GenAI-driven digital technologies in language education (Hao et al., 2024), systematic research remains scarce on the multifaceted impacts of GenAI within applied linguistics, particularly concerning language learning instruction and teacher professional development (Teng, 2024a). To address this gap, the present study first provides a systematic review of GenAI-driven digital technologies in applied linguistics, focusing on language learning (e.g., English writing) and teacher development, and synthesizes insights across three interrelated dimensions: opportunities, challenges, and future directions. At its core of qualitative inquiry, the present study further explores how digital technologies reshape teacher agency, propelling applied linguistics beyond traditional paradigms toward a technology-driven, multidimensional, and multilevel trajectory of development.

Literature review

What is Digital Applied Linguistics (DAL) and Where are we?

Digital Applied Linguistics (DAL) represents an emerging and cutting-edge field that embodies the deep convergence of applied linguistics and digital technology (Jenks, 2023). Essentially, it harnesses technologies such as GenAI (Mizumoto & Eguchi, 2023; Teng, 2024b, 2025c), big data corpus analytics (Mizumoto et al., 2024; Hartwell & Aull, 2023), and digital platforms (e.g., Wordtune) to address complex theoretical and practical challenges in linguistic research and language education (Rad et al., 2023). In the rapidly evolving landscape of contemporary education, these technologies have not only transformed traditional linguistic research methodologies but have also introduced innovative solutions to issues of linguistic diversity and multilingual education. Accordingly, the applications of DAL are manifested across four key dimensions. First, the integration of big data corpus and machine learning enables the identification of linguistic patterns (e.g., writing practice) and trends, offering data-driven insights to

support empirical language research (Mizumoto et al., 2024). Second, digital tools are employed to document endangered languages and construct online corpora (Hartwell & Aull, 2023), thereby promoting linguistic diversity and contributing to the preservation of cultural heritage. Third, the adoption of GenAI technologies such as ChatGPT facilitates intelligent feedback (Huang & Teng, 2025; Teng, 2025a), self-regulated learning (Dizon et al., 2025), self-efficacy (Huang & Mizumoto, 2024), and automated content generation (Yao et al., 2025a), enhancing the efficiency and quality of language learning experiences. Fourth, the cross-disciplinary integration of linguistics, education, and computer science fosters innovative pedagogical practices and theoretical advancement (Pournaras, 2017; Xin & Chen, 2025). Finally, GenAI technologies have demonstrated considerable potential in fostering deeper learner engagement in L2 language acquisition, particularly in domains such as L2 writing, while simultaneously aiding teachers in cultivating critical, reflective, and theoretically informed perspectives on technology-mediated pedagogy (Darvin, 2025; Teng & Shen, 2025; Yeung, 2025). Collectively, these technological applications not only enrich the theoretical foundations of applied linguistics but also substantially improve the effectiveness and accessibility of language education, providing practical solutions to global linguistic challenges. Nevertheless, the accelerating development of digital technologies has also introduced pressing ethical concerns, particularly regarding data privacy and the cultivation of learners' digital literacy (Teng, 2023). Striking an appropriate balance between technological innovation and ethical responsibility thus remains a critical issue in the ongoing evolution of DAL.

Hence, DAL is an interdisciplinary field at the nexus of applied linguistics and digital technologies that employs tools such as generative AI, big data corpus analytics, machine learning, and online platforms to advance linguistic research and transform language education. DAL encompasses four core application domains: (1) data-driven inquiry that leverages large-scale corpora and machine learning to detect linguistic patterns and inform empirical research (Mizumoto et al., 2024); (2) digital documentation and corpus construction for endangered and under-resourced languages, supporting linguistic diversity and cultural preservation (Hartwell & Aull, 2023); (3) GenAI-enabled pedagogy that delivers intelligent feedback, self-regulated learning, and automated content generation to enhance learning efficiency and quality (Teng, 2024b, 2025a; Yao et al., 2025a); and (4) cross-disciplinary integration of linguistics, education, and computer science that catalyzes innovative pedagogies and theoretical development (Pournaras, 2017; Xin & Chen, 2025).

Understanding DAL from Communities of Practice (CoP)

The present study adopts Wenger's (1998) theory of CoP as the conceptual framework to investigate the multifaceted applications of digital technologies in linguistics. Originating from the work of Lave and Wenger (1991), this theory emphasizes the cultivation and dissemination of deep knowledge through shared goals, active participation, and dynamic collaboration among community members. Within the realm of DAL, the CoP framework offers a valuable lens for understanding how multidisciplinary integration and innovative pedagogical practices emerge and evolve. For instance, in an era of accelerated technological transformation, maintaining technological literacy and adaptive capacity has become essential for such communities to effectively engage with emerging innovations, thereby sustaining academic progress and responding to evolving educational demands (Kellner, 2004). Given this, knowledge in linguistics can be generated and disseminated through shared goals, active engagement, and sustained interaction, thereby accelerating the integration of knowledge and technology in DAL and promoting technology-driven language learning environments. Moreover, the synergy between knowledge and technology is also evident in online learning contexts. For instance,

Greenhow et al. (2022) identified several critical lenses for understanding online learning, including community, engagement, and pedagogical perspectives, which collectively illuminate how digital platforms can mediate effective knowledge creation and instructional practice. The community lens, grounded in the concept of communities of practice, highlights the collective construction of knowledge and the significance of participatory learning processes. The engagement lens encompasses a wide range of cognitive and affective experiences, emphasizing academic and social behaviors that facilitate the co-construction of meaning. The pedagogical lens focuses on the situated factors influencing online instruction and lesson design. Collectively, these perspectives, rooted in Wenger's (1998) theory, further elucidate how knowledge is constructed, transmitted, and recontextualized within DAL, thereby revealing the mechanisms that underpin practical innovation and disciplinary advancement. However, these constructs remain incomplete without recognizing the pivotal role of teachers in DAL. Within this field, theoretical models of language learning should account for teachers' beliefs on linguistic development.

CoP redefines DAL not merely as a technical discipline, but as a dynamic, socially constructed ecosystem. Through this lens, DAL is understood as a collective endeavor where the integration of technology and linguistics is driven by human interaction rather than hardware. Knowledge in the era of DAL is not static; rather, it is actively cultivated and disseminated through the "shared goals, active participation, and dynamic collaboration" of its members. Consequently, DAL emerges as a participatory ecology where multidisciplinary innovation is the direct result of researchers and educators working together to co-construct meaning and solve evolving educational challenges. Furthermore, the vitality of this community depends on its "adaptive capacity." Enlightened from Kellner (2004), DAL is a discipline of sustained responsiveness, where maintaining technological literacy is essential for the community to engage with rapid digital transformations. The "practice" of DAL involves a continuous cycle of learning and adaptation, ensuring that the community remains capable of sustaining academic progress in the face of new innovations. This is further reinforced by the "community, engagement, and pedagogical" lenses identified by Greenhow et al. (2022), which frame digital platforms not just as delivery tools, but as vital spaces where social behaviors and cognitive experiences intersect to mediate effective knowledge creation. Of course, this theoretical model remains incomplete without acknowledging the central agency of the practitioner. The mechanisms of DAL—how knowledge is constructed, transmitted, and recontextualized—are fundamentally anchored in the reality of the classroom. Therefore, the "Community of Practice" in DAL is ultimately defined by the teachers themselves, whose beliefs, or agency, on development to fit with the evolving needs of DAL, serve as the critical filter for applying theoretical models. This perspective shifts the focus of DAL from abstract systems to the situated wisdom of educators, suggesting that true disciplinary advancement relies on aligning technological potential with the practical, pedagogical insights of those guiding the learning process. Teacher agency, in this regard, is essential.

Understanding DAL from Agency

Agency refers to an individual's capacity to "shape one's responsiveness to problematic situations" (Biesta & Tedder, 2006, p. 11). As Biesta and Tedder (2006) emphasize, agency involves the ability to reorient one's temporal perspectives and reconstruct one's relationship with social and structural conditions. While their perspective foregrounds the ability aspect of agency, Bandura (2006) conceptualized it as a reciprocal interaction between personal, behavioral, and environmental determinants, noting the dynamic interplay between individuals and their contexts. Grounded in Bandura's framework, Jenkins (2019) extended the notion of agency to the

educational domain, defining teacher agency as the enactment of teachers' intentional efforts to influence the change within certain learning context to achieve desired educational outcomes. Drawing from Bandura's triadic reciprocal model, Jenkins (2019) proposed a teacher agency framework emphasizing the interconnectedness of personal, behavioral, and environmental factors. He further noted that environmental factors fluctuate over time in response to external pressures and institutional influences. Informed by this theoretical grounding, the present study adopts Jenkins' (2019) distinction between proactive agency, passive agency, and reactive agency. Passive agency refers to a more constrained form of engagement in which teachers have limited capacity, resources, or institutional support to act, resulting in hesitation, compliance without deep appropriation, or inaction marked by anxiety and uncertainty. Proactive agency manifests when teachers initiate pedagogical or digital innovations relating to perceived needs, driven by intrinsic motivation rather than external mandates. Conversely, reactive agency arises when teachers adapt to externally imposed changes, requiring responsive adjustment at the classroom or institutional level in different language contexts. For instance, in Jenkins' (2019) qualitative investigation of twelve teachers across state and private schools, proactive agency was characterized by teachers' intrinsic motivation, time investment, and sustained commitment to implementing curriculum change. Conversely, reactive agency was observed when teachers adjusted instructional design or content following top-down leadership decisions. In a recent study, Teng and Yip (2025) characterized language teachers' identities in the age of GenAI as either "worriers" or "warriors." This dichotomy reflects their response to community changes, influencing their professional agency. Specifically, one group of teachers resists GenAI over concerns about diminishing critical thinking, while the other embraces it to enhance efficiency and redefine their expertise. Thus, teachers' perceptions of their professional value and sense of belonging within the educational community play a pivotal role in shaping their agency and engagement in the development of DAL.

When viewed through the theoretical framework of teacher agency, DAL is redefined not as a static collection of technologies, but as a dynamic field shaped by the "intentional efforts" of educators to influence change within their specific contexts. Drawing on Bandura's (2006) and Jenkins' (2019) triadic reciprocal models, DAL emerges as the intersection where personal determinants (a teacher's digital literacy and beliefs), behavioral factors (pedagogical implementation), and environmental factors (institutional infrastructure and software availability) constantly interact. In this view, DAL is fundamentally a discipline of negotiation, where the "environment" fluctuates due to external pressures, such as rapid technological updates or policy shifts, and the teacher's role is to navigate these fluctuations to achieve desired linguistic outcomes.

Gaps and Rationale for Understanding DAL

Despite the robust body of scholarship examining language learning and teacher agency in technology-driven contexts, a critical theoretical disjuncture remains. Previous studies have largely treated these constructs in isolation, failing to integrate the sociocultural perspective of CoP with the individual dynamics of Teacher Agency. Consequently, the field lacks a comprehensive understanding of how these forces co-develop within the rapidly evolving domain of DAL. Specifically, there is a paucity of research exploring how the collective wisdom of a professional community intersects with individual teacher autonomy to shape how knowledge is constructed, adapted, and operationalized in digital environments.

To bridge this divide, the present research undertakes a systematic examination of the reciprocal relationship between community-based knowledge and individual agency. Comprising two distinct studies, this research aims for a comprehensive and systematic review in the area

of AI-driven linguistic analysis and forward-looking innovations in language learning, and a qualitative examination of how teacher agency is applied through the triad of language learning, teacher professional development, and epistemic beliefs. By situating this investigation within GenAI-enhanced environments, the present research seeks to provide both theoretical grounding and empirical insights, revealing how teachers navigate the tension between established linguistic norms and the disruptive potential of emerging AI technologies to fit with the evolving needs of DAL.

Study 1

Rationale and Research Questions

Despite the growing body of research on digital technologies in applied linguistics, comprehensive and systematic reviews remain scarce, particularly in areas such as AI-driven linguistic analysis and forward-looking innovations in language learning. To address this scholarly gap, the present study undertakes a systematic examination of the current landscape and prospective evolution of digital technology applications in linguistics. By focusing on language learning and teacher development, it seeks to provide theoretical grounding and empirical insights that advance conceptual understanding and pedagogical innovation within this emerging interdisciplinary domain. Accordingly, the research questions guiding this study are formulated as follows:

> In what ways does GenAI integration transform language learning and teaching in Digital Applied Linguistics?

Methods

Study 1 was a systematic review, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology (see Figure 1) to ensure a rigorous and transparent review process.

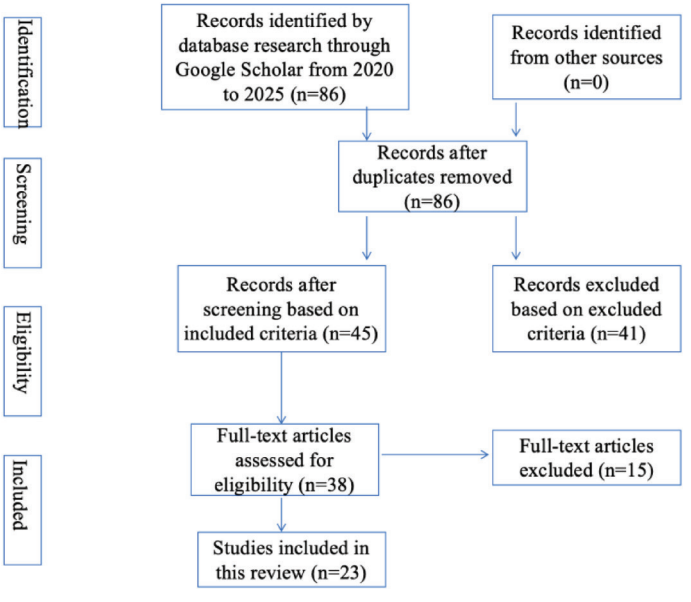

Figure 1. *PRISMA framework for the systematic review*

During the identification stage, a comprehensive search was conducted across major academic databases, primarily Google Scholar, yielding 86 preliminary studies published between 2020 and 2025 on AI-driven digital technologies in applied linguistics. The search employed a set of targeted keywords, including AI, ChatGPT, language teaching, digital linguistics, EFL/ESL learners, and EFL/ESL teachers. These keywords were selected based on the research questions, focusing on literature relevant to linguistic applications in English language education.

In the screening stage, studies were filtered according to specific included criteria. The selected studies focused on the role of digital technologies, digital platforms, or GenAI applications in linguistics within language teaching contexts and were published in SSCI-indexed or other peer-reviewed academic journals. Studies were excluded if they did not involve digital applied linguistic, or if they were not written in English.

During the eligibility assessment stage, abstracts, literature review sections, and methodology descriptions were carefully examined to remove non-compliant publications, resulting in 38 academically valuable studies. In the included stage, the selection was further refined and systematically categorized, resulting in 23 studies that satisfied all criteria. Key details, including authorship, year of publication, research purpose, and principal findings, were extracted and organized into structured datasets for subsequent analysis.

Results from Study 1

Based on the findings from the selected literature in Table 1 (Appendix A), this paper systematically examines the application of GenAI-driven digital technologies in language education, identifying three main primary thematic areas.

Theme 1: Affective Responses and Cognitive Development in EFL/ESL Learners' use of GenAI for Language Education

A growing body of research has examined EFL learners' affective dispositions and cognitive development in relation to the use of GenAI technologies, with particular attention to writing motivation (Huang & Mizumoto, 2024; Teng, 2025c; Zou et al., 2025), behavioral intentions (An et al., 2023; Li et al., 2024), learner engagement (Rad et al., 2023; Xu et al., 2024; Yeung, 2025), metacognitive awareness (Abdelhalim, 2024; Teng, 2025a; Teng & Shen, 2025), and language proficiency (Guan et al., 2025; Yang & Chen, 2025). Collectively, these studies provide consistent evidence that GenAI use can substantially enhance learners' motivation and engagement, while positively shaping academic performance, learning attitudes, and perceptions toward technology-mediated instruction. For example, Rad et al. (2023) demonstrated that GenAI supports writing by generating topic ideas and titles, scaffolding content comprehension through interactive dialogue, and producing audio versions of texts to facilitate sharing and revision. Beyond cognitive support, GenAI has also been shown to alleviate learning anxiety, increase learners' acceptance of educational technologies, and strengthen their sense of engagement, thereby contributing to sustained cognitive development. Learners who use GenAI effectively tend to exhibit more advanced metacognitive competencies, such as designing purposeful prompts, engaging in systematic reasoning, and employing self-regulation strategies during the writing process. In contrast, learners who struggle to engage meaningfully with GenAI tools often fail to capitalize on their affordances and demonstrate limited capacity for seeking, interpreting, and providing constructive feedback in writing tasks (Teng, 2024b). Importantly, empirical evidence suggests that many learners adopt a critical and selective approach when interacting with GenAI feedback. Direct feedback on grammar and lexical choice is often incorporated immediately, whereas feedback related to coherence and organization is more frequently subjected to reflective evaluation and indirect application (Yeung, 2025). Overall, learners tend to express

positive attitudes toward GenAI as a supportive learning resource. Against this backdrop and given the central role of cognitive and affective factors in EFL learners' knowledge construction, the effective pedagogical integration of GenAI into language teaching has emerged as a critical area of inquiry.

Theme 2: Applications of GenAI in Language Teaching

Recent scholarship has increasingly recognized GenAI as a powerful supportive resource in foreign language education (Mizumoto & Eguchi, 2023; Teng, 2024b; Yang et al., 2024; Yang & Chen, 2025; Yao et al., 2025b). In instructional practice, GenAI functions as an intelligent language assistant that facilitates more accurate and fluent translation, expands learners' lexical repertoires, reduces grammatical and orthographic errors, and enhances cross-cultural communicative competence. Beyond language support, GenAI tools such as ChatGPT have been widely adopted as automated writing assessment systems (Mizumoto & Eguchi, 2023), thereby alleviating teachers' grading burdens and minimizing subjectivity in evaluation. This redistribution of instructional labor enables educators to concentrate more fully on higher-order aspects of writing, including textual organization, coherence, and rhetorical effectiveness (Teng, 2024b). Moreover, the adaptive feedback mechanisms and personalized tutoring affordances of GenAI transcend the temporal and spatial constraints of traditional classroom instruction, fostering continuous and individualized learning opportunities (Mizumoto & Eguchi, 2023; Teng, 2024a). Importantly, GenAI's pedagogical potential extends beyond feedback provision. Emerging research demonstrates that GenAI can meaningfully support corpus-based language pedagogy, particularly in facilitating learners' acquisition of complex grammatical constructions. For instance, when GenAI is integrated into corpus-informed instruction on causative constructions, higher-intermediate learners are better able to identify core constructional features and consolidate new linguistic knowledge through self-explanation and reflective engagement (Yang & Chen, 2025). This finding underscores GenAI's capacity not only to scaffold surface-level language accuracy but also to promote deeper grammatical awareness and conceptual understanding.

However, despite these pedagogical benefits, the extensive integration of GenAI in language education also introduces notable ethical and instructional challenges. Hao et al. (2024) cautioned that GenAI may exacerbate educational inequalities and potentially diminish learners' critical thinking capacity. Hence, the responsible and ethical deployment of GenAI tools has become imperative. While GenAI demonstrates proficiency in assisting language tasks, it remains constrained in understanding contextual nuance, emotional expression, and creative reasoning. Human attributes such as creativity, intuition, and cultural awareness thus remain indispensable to the learning process (Teng, 2023). In summary, as for EFL/ESL teachers, GenAI-driven technologies present unprecedented opportunities for innovation in language teaching, however, their sustainable and effective use requires a careful balance between ethical responsibility and pedagogical efficacy. Crucially, the irreplaceable role of teachers in GenAI integration remains central to realizing its full educational potential.

Theme 3: The Future of Foreign Language Teachers in the Era of Digital Technology in Applied Linguistics

The proliferation of digital technologies in applied linguistics has profoundly reshaped the landscape of foreign language teacher education, particularly in the areas of teacher identity (Pan & Zhang, 2024), role transformation (Yi et al., 2022), and belief evolution (Zhou et al., 2024). Teacher identity encompasses self-concept, self-perception, and individuals' understanding of how they are perceived by others. Pan and Zhang (2024) further conceptualized

the "micro-celebrity" identity in language education as multifaceted, comprising roles such as "successful yet imperfect language teachers," "intimate peers articulating language beliefs," and "educators constructing identity through linguistic transformation practices." By showcasing professional credentials and personal learning experiences, these teachers convert lived experiences into recognized expertise, thereby reinforcing professional authority while narrowing the relational distance with students. This dynamic fosters greater classroom engagement and amplifies teachers' pedagogical influence.

Within GenAI-enhanced digital teaching environments, the professional roles of foreign language teachers in China have undergone a significant paradigm shift. The conventional teacher-centered instructional model is progressively giving way to collaborative and learner-centered pedagogies, where teachers act as facilitators, motivators, and co-constructors of knowledge. Language instruction in these contexts prioritizes reciprocal teacher-student interaction and emphasizes the co-creation of linguistic knowledge through participatory, multidimensional engagement (Xu et al., 2024). This transformation not only elevates classroom interaction quality but also catalyzes the reconfiguration of teacher identity and the reconceptualization of pedagogical beliefs. Teacher beliefs, however, are not fixed; they evolve dynamically through processes of social regulation, self-regulation, and collaborative interaction. As Zhou et al. (2024) noted, educators refine their instructional beliefs through ongoing engagement with peers, learners, and institutional resources. Many teachers transition from initial skepticism toward GenAI technologies to a more open and affirmative stance, leveraging these tools to enrich instruction and cultivate professional growth. This adaptive process underscores continuous professional development and lifelong learning in the digital age.

Collectively, these studies propose a systematic and pragmatic framework for teacher professionalization in the era of DAL. In response to the opportunities and challenges posed by GenAI, the development of foreign language teacher education in China should prioritize the reconstruction of teacher identity, the transformation of professional roles, and the innovation of pedagogical paradigms. Achieving this transformation requires not only robust institutional and policy support but also teachers' proactive engagement with technological change, thereby fostering a reciprocal cycle of pedagogical innovation and professional advancement. Thus, it is essential to further investigate teachers' agency in terms of GenAI integration within language education.

Study 2

Research Design and Question

Study 2, employing qualitative research methods, investigated the current status and challenges faced by in-service tertiary educators in mainland China, Hong Kong and Macau, regarding the integration of GenAI-driven digital technologies. This is a purely qualitative research design. The research question is as follows:

> How do teachers perceive their roles in response to GenAI-driven changes in Digital Applied Linguistics?

Participants

Purposive sampling was used to recruit in-service tertiary educators with current or recent experience integrating GenAI-driven digital technologies into their teaching. The sample comprised 20 English teacher educators. We finally selected three teachers that can represent a range of institutions, levels of GenAI familiarity, and from different regions of China. Inclusion

criteria required that participants be actively teaching at a tertiary institution either in mainland China, Hong Kong, or Macau, have direct experience with or a demonstrated interest in AI-enabled tools (such as GenAI, automated feedback systems, and adaptive learning platforms), and be willing to share instructional materials where available. The participants (pseudonyms) were aged between 35 and 48 years. Recruitment was conducted through teaching and learning centers, departmental mailing lists, and professional networks. Invitation emails described the study purpose, procedures, and ethical safeguards, and volunteers were screened to ensure disciplinary diversity and jurisdictional balance. Ethical procedures included obtaining informed consent, anonymizing all data with pseudonyms, removing identifiers from transcripts and artifacts, secure storage on encrypted drives accessible only to the research team, and seeking institutional ethics approval where applicable. We ultimately focused on three teachers: Jane, a female teacher from mainland China; Chloe, a female teacher from Macau; and Jason, a male teacher from Hong Kong. The reason for this focused analysis was to provide a rich, comparative, and context-sensitive account of GenAI integration practices that could not be fully captured through breadth alone. These three cases were selected because they exemplified contrasting yet illustrative trajectories of adoption, differed in institutional policy environments and resource availability, and offered unusually rich data (comprehensive instructional artifacts, reflective interviews, and follow-up clarifications). Together, they enabled an in-depth exploration of how local governance, disciplinary demands, and educator beliefs interact to shape AI-enabled pedagogy, assessment design, and student support.

Data Collection

A qualitative, multi-method design of semi-structured interviews was adopted to enable triangulation and capture both reported practices and documented course designs. Individual interviews were conducted in person or via video conferencing and typically lasted 45–60 minutes. The interview guide probed adoption history, pedagogical rationales, specific GenAI uses (e.g., formative feedback, chatbots, analytics), perceived benefits and risks, assessment strategies, institutional policies and support, and student responses. Participants responded to the interview questions in their native language, Mandarin. Their responses were subsequently translated into English, with the translation verified independently by two researchers to ensure accuracy and reliability. With participant consent, interviews were audio-recorded and professionally transcribed, with transcripts checked for accuracy against the recordings. Instructional artifacts—including course syllabi, lesson plans, learning management system (LMS) pages, assessment rubrics, and examples of GenAI-integrated activities such as GenAI writing assistants or automated feedback modules—were collected when available. These artifacts were cataloged and reviewed using a structured template that documented GenAI use-cases, alignment with learning outcomes, assessment design, transparency and disclosure practices, and accessibility considerations.

Data Analysis

A hybrid inductive–deductive coding strategy was adopted for data analysis. Deductive codes were derived from the research questions and relevant literature, covering areas such as pedagogical use-cases, technical infrastructure, ethics and governance, assessment redesign, professional development, and student outcomes. Inductive coding was used to surface emergent themes, including disclosure practices, GenAI-resilient assessment strategies, institutional incentives, and concerns about student overreliance. Two researchers independently coded an initial subset of transcripts to develop a shared codebook, assessed intercoder agreement, and resolved discrepancies through discussion before refining and applying the codebook to

the full dataset. Thematic analysis organized codes into higher-order categories and examined patterns across jurisdictions (mainland China, Hong Kong vs. Macau), disciplines, and levels of GenAI familiarity. Matrix queries and case comparisons were employed to explore co-occurrences among themes, such as links between ethics concerns and assessment practices. Peer debriefings within the research team and maintenance of an audit trail enhanced credibility and dependability. Themes were synthesized into key findings that describe the current state of GenAI integration, perceived opportunities, and challenges, supported by illustrative quotes and anonymized artifact excerpts that highlight both differences and commonalities across contexts.

Results from Study 2

Study 2 yielded critical insights into mainland Chinese, Hong Kong and Macau teachers' exploration with GenAI technology in language education, illuminating their exercise of professional opportunities and the challenges they faced. The detailed findings are presented below.

Jason's Case: Proactive adaptation under Hong Kong's invisible institutional pressures

Jason characterized the adoption of GenAI in foreign language teaching as "being forced to go with the flow," capturing a tension between enthusiasm for innovation and the pressure to conform. While he acknowledged GenAI's transformative potential for enhancing teaching and learning, he simultaneously experienced the weight of institutional expectations. *Jason*'s university has taken an active stance toward GenAI integration, issuing comprehensive implementation guidelines and providing robust technical support. At the departmental level, regular workshops and training sessions are held, fostering a collaborative culture where faculty exchange resources and pedagogical strategies through online and face-to-face platforms. *Jason* not only participated in these departmental initiatives but also attended inter-university workshops across Hong Kong to broaden his professional engagement. Reflecting on the city's highly competitive educational landscape, *Jason* noted, "In Hong Kong, you can feel the pressure from peers." His instructional design demonstrates full integration of GenAI tools into teaching and assessment practices, for instance, employing GenAI-generated feedback to enhance classroom interactivity and streamline assignment evaluation. "Hong Kong educators must stay cutting-edge and internationally competitive," he explained, "or risk being left behind." *Jason*'s perspective primarily reflects proactive teacher agency, wherein teachers perceive themselves as being compelled to adopt GenAI in applied linguistics as a consequence of institutional or leadership directives. Such externally driven changes often heighten professional pressure and diminish teachers' capacity to sustain intrinsic motivation and autonomous engagement in pedagogical innovation (Jenkins, 2019).

Despite strong institutional and peer support, *Jason* expressed growing concern over the unintended consequences of GenAI adoption. He observed that students were increasingly reliant on GenAI for completing assignments, raising questions about academic integrity and authentic learning engagement. This shift compels educators to continuously revise and diversify assessment methods to preserve learning quality and fairness. *Jason* concluded with a candid reflection: "I have to go with the flow. I want to catch my breath, but the invisible pressure keeps pushing me forward, leaving little room to pause." As discussed earlier, *Jason*'s experience exemplifies the dual nature of GenAI integration in Hong Kong's higher education context, marked by proactive adaptation, institutional ambition, and the invisible yet persistent pressures of technological acceleration. It underscores the complex interplay between teacher agency, systemic expectations, and ethical responsibility in the evolving ecology of GenAI-driven language education.

Chloe's Case: Reactive exploration amid environmental constraints in Macau

In contrast to *Jason*, *Chloe* perceived the integration of GenAI into teaching as a more challenging endeavor. Although she showed a strong willingness to employ GenAI for pedagogical innovation, the absence of systematic knowledge updates and limited practical opportunities significantly hindered progress. *Chloe* observed that Macau's small educational ecosystem, coupled with the lack of institutional GenAI policies, creates what she metaphorically describes as a situation "like an ostrich burying its head in the sand." This inertia, she suggested, may arise from insufficient institutional awareness or educators' apprehension toward emerging technologies.

Chloe further stated the lack of effective communication among faculty members, with many educators choosing to remain within their professional "comfort zones." This conservative stance often translates into a passive resistance toward integrating GenAI tools into teaching. Despite such challenges, *Chloe* continued to actively explore GenAI's pedagogical potential, motivated by personal curiosity and her vision of the teacher's evolving role in the digital age. She persistently updates her knowledge base through online learning platforms, academic networks, and professional workshops, while experimenting with GenAI applications in instructional design. As she candidly reflected, "Though my hands are tied, I strive to learn and dance with shackles on." From Chloe's perspective, teachers require substantial motivation to engage with GenAI in applied linguistics. When enacting reactive agency, they need considerable time and effort in planning and implementing GenAI tools, a process that fosters professional confidence and pedagogical competence (Jenkins, 2019).

Taken together, *Jason* and *Chloe*'s cases illuminate the multifaceted nature of GenAI adoption in higher education. *Jason*'s approach embodies a proactive–adaptive stance: his engagement is driven largely by institutional support, peer competition, and structured professional networks. In contrast, *Chloe* represents a reactive–exploratory orientation, advancing technological integration through self-motivation and reflective experimentation in the absence of systemic support. These divergent experiences underscore the fluid and emergent nature of teacher agency in GenAI-mediated educational environments, offering empirical elaboration of Jenkins' (2019) theoretical framework within digital contexts and extending the insights of Teng and Yip (2025). In this study, teacher agency is reconceptualized not as a fixed attribute but as a temporally contingent and contextually enacted process, continuously shaped through the dynamic interplay between individual intentions and institutional affordances. Teachers continuously balance external pressures with internal aspirations, navigating tensions between established pedagogical norms and emergent technological practices. Within the framework of Digital Technology–Enhanced Language Teaching, teacher agency thus operates as an outcome which is shaped by the interaction between personal drive and external empowerment, or as a process of ongoing adaptation, reflection, and professional transformation in response to an ever-evolving educational landscape.

Jane's Case: Passiveness, Frustration, and *Neijuan* (Involution)

Jane, a university foreign-language teacher based in Guangzhou, has observed her campus gradually begin to acknowledge the potential of AI in foreign language education. This growing attention, however, brings her little reassurance. In contrast to universities in Hong Kong—many of which have already integrated AI-assisted teaching into curricula, assessment, and research—*Jane*'s institution remains cautious and fragmented in its approach. AI tools are confined to a handful of pilot courses, often introduced more as symbolic initiatives than as systematic reforms, and their effectiveness has yet to be formally evaluated. This uneven development leaves Jane with a persistent sense that foreign-language education occupies a marginal position in her institution's strategic priorities. She is caught between a strong desire

not to fall behind and a quiet fear that she may already be doing so, worrying that failing to align with technological trends could eventually undermine her professional relevance.

When reflecting on the current climate of teaching and research, *Jane* described it as overwhelmingly *Neijuan*: "You suddenly realize how intense the competition has become—if you don't know AI, you will inevitably fall far behind." Her remark captures the subtle yet pervasive pressure faced by language teachers in an era where AI is rapidly reshaping pedagogical norms and academic trajectories. This pressure is not imposed solely from above; it also emerges from below, through students' changing expectations. *Jane* notes that students increasingly anticipate AI-supported learning experiences, such as real-time speech translation, automated grammar feedback, and AI-assisted writing development. In comparison, traditional classroom practices can appear slow, rigid, or outdated. She worries that if she cannot offer what students perceive as "smart" or "advanced" learning environments, they may question the value of her courses—or choose alternatives that promise greater technological sophistication.

Jane's anxiety is further intensified by her observations of peers who have successfully incorporated AI into their research practices. She has watched colleagues use AI tools to accelerate data analysis, refine academic writing, and design innovative studies, gaining visibility at international conferences and in high-impact journals. By contrast, her own research methods—carefully developed over years of disciplinary training—now feel unexpectedly fragile and old-fashioned. Although she is curious about GenAI and recognizes its potential, she lacks clear institutional guidance, training, or time to experiment meaningfully. As a result, *Jane* finds herself in a state of suspended action: aware of the necessity to change, yet uncertain how to begin. Her experience illustrates a form of passive agency shaped less by resistance than by structural hesitation, emotional fatigue, and the quiet pressure of involution, leaving her anxious, conflicted, and unsure of her next step.

Overall Discussion

Opportunities

As GenAI becomes increasingly embedded in language learning and teaching, it is fundamentally reshaping traditional educational models and exerting profound influences on language acquisition and instruction. A growing body of research indicates that GenAI can substantially enhance learners' motivation and self-efficacy (Huang & Mizumoto, 2024; Teng, 2025), while simultaneously fostering learner autonomy and engagement (Teng, 2024a). These affective and motivational gains, in turn, optimize learners' cognitive and behavioral performance in language learning tasks (Abdelhalim, 2024; Xu et al., 2024). Through the provision of abundant learning resources and adaptive, personalized feedback, GenAI enables learners to identify performance gaps, regulate learning strategies in a timely manner, and sustain continuous improvement in learning outcomes. Moreover, when deployed as a collaborative learning tool, GenAI strengthens online and offline interaction among learners, thereby heightening motivation, stimulating interest, and supporting the collective development of language skills (Huang & Mizumoto, 2024; Teng, 2024b). Crucially, learners' positive attitudes toward GenAI-mediated instructional approaches facilitate knowledge construction and reinforce the pedagogical value of GenAI-based language learning environments (Yang & Chen, 2025). Such environments increase opportunities for meaningful engagement and responsive learning aligned with individual needs, particularly by enabling learners to engage in modeling and imitation processes through GenAI outputs, which can then be critically evaluated, adapted, and internalized into their own knowledge structures (Guan et al., 2025).

The rapid advancement of GenAI technologies also offers new pedagogical insights for teachers. Specifically, GenAI can support educators in cultivating learners' cognitive development by

stimulating intellectual curiosity, scaffolding skill acquisition, and fostering emotional engagement (Yao et al., 2025b). Through pedagogically informed guidance, teachers play a crucial role in enhancing and validating learners' knowledge construction processes (Yang & Chen, 2025). Building on GenAI-generated automated feedback, teachers further support learners in developing awareness of effective and reflective GenAI use, thereby preventing uncritical reliance on technological outputs. In essence, within a GenAI-driven educational paradigm, teachers are not merely technology adopters but key pedagogical innovators who strategically integrate large language models with digital tools to advance instructional practice and contribute to ongoing disciplinary research.

Challenges

While GenAI offers substantial opportunities for DAL, its rapid integration also introduces pressing challenges that demand immediate attention. Foremost among these are ethical concerns. As students increasingly rely on GenAI, such as ChatGPT, to draft essays or complete language tasks, the authenticity of academic work and integrity of assignments are increasingly at risk (Hao et al., 2024; Teng, 2023; Yang et al., 2023). Instances of plagiarism and misuse further exacerbate this educational inequality. Most important, at the core of the problem lies GenAI's inherent opacity and limited controllability, which can distort learning outcomes and undermine their value. Addressing these challenges requires the development of robust management frameworks and evaluation mechanisms to regulate GenAI use, safeguard academic integrity, and promote equitable educational practices.

Second, insufficient understanding and mastery of GenAI technologies among teachers and students constitute a significant challenge. Many language instructors, particularly those from humanities backgrounds, have limited knowledge of GenAI principles, functionalities, and pedagogical applications (Wu, 2024). Traditional teaching philosophies and institutional constraints further contribute to teachers' passive engagement with GenAI, often leading them to perceive these tools as peripheral to their instructional practices. This perception not only shapes teachers' pedagogical approaches but also influences students' attitudes toward GenAI. Some learners experience hesitation or even shame when employing GenAI-assisted tools, regarding them as dishonest or non-compliant learning methods (Giray, 2024). Such beliefs hinder the effective integration of GenAI in language education and diminish its potential benefits.

Third, the lack of adequate external support, together with teachers' biases toward GenAI (Guan et al., 2025), further constrains its adoption and effective pedagogical use. In many institutional contexts, overly restrictive responses, such as outright bans on GenAI tools (Radanliev, 2025), have been implemented in place of clear usage guidelines, professional development opportunities, or systematic training frameworks. Such prohibitive approaches neither equip educators nor support learners in developing responsible, ethical, and strategic GenAI use; instead, they risk marginalizing its educational value and obscuring its pedagogical potential. Moreover, it remains unclear how GenAI can be leveraged to mitigate teacher bias and promote more equitable learning outcomes. Even when teachers show strong professional agency, their instructional practices may not benefit all learners equally, given individual differences in proficiency, learning needs, and access to support (Guan et al., 2025). In addition, limited awareness of GenAI's pedagogical affordances, coupled with insufficient hardware infrastructure, technical support, and coherent institutional policies, further hinders the meaningful integration of GenAI into classroom practice. Collectively, these structural and perceptual barriers restrict the transformative capacity of GenAI in language teaching and learning, underscoring the need for systemic support, informed policy-making, and sustained teacher development.

Exploration: Practical Pathways and Future Directions

An Exploration of Language Knowledge Construction in DAL

First, findings from the first study revealed the supportive and interactive roles of GenAI in language education, which are guided by Wenger's (1998) communities of practice framework. This framework provides a systematic and forward-looking foundation for the sustainable development of the field, emphasizing knowledge creation, exchange, and dissemination through collaborative participation. Moreover, this approach has catalyzed profound structural transformations in language education through the integration of GenAI, as evidenced by the diversification of instructional content, the reconfiguration of pedagogical methodologies, and the expansion of multimodal and flexible learning modalities (Mizumoto et al., 2024; Teng, 2025a). One key dimension of the communities of practice framework for future DAL lies in establishing clear and coherent objectives that guide the integration of digital technologies to enhance language education and research. From this perspective, the primary objectives of DAL are to optimize the efficiency and effectiveness of language learning and linguistic inquiry through the strategic application of artificial intelligence, big data analytics, and natural language processing. This aim extends beyond the mere description and analysis of linguistic phenomena to addressing practical challenges in language education and acquisition. For instance, GenAI-driven tools, such as automated writing assessment systems and speech recognition technologies, provide learners with immediate, adaptive feedback, facilitating more efficient skill development. Moreover, digital technologies enable advanced linguistic research, including corpus analysis, language policy evaluation, and the preservation of endangered languages. Collectively, these applications not only advance theoretical inquiry but also achieve a synergistic balance between academic innovation and practical pedagogical utility.

An Exploration of Language Teaching in DAL

The current research further revealed that GenAI-driven technologies overcome the temporal and spatial limitations of traditional classrooms while fostering interactive and collaborative engagement among teachers, students, and peers (Xu et al., 2024; Yao et al., 2025a). This emerging pedagogical paradigm, guided by the communities of practice framework (Wenger, 1998), cultivates dynamic and collaborative learning environments that foster deeper domain expertise and enhanced skill development among members. It not only enriches the overall learning experience but also promotes learner autonomy, self-regulation, and sustained engagement in the process of language acquisition. Under this interpretation, a key future direction in DAL lies in conceptualizing member participation within a community of practice as a form of multidisciplinary collaboration and integration, where diverse disciplinary expertise converges to drive innovation and knowledge co-construction. Such communities are characterized by the active engagement of members, who in the digitally driven applied linguistics domain represent diverse disciplines, including linguistics, computer science, education, and the social sciences. This diversity fosters intellectual intersections that generate innovative, multidimensional perspectives. For example, applied linguists may collaborate with GenAI specialists to develop sophisticated collocation analysis tools; education researchers can explore strategies for integrating these tools effectively into pedagogical practice; and social scientists can examine their cultural and societal implications across diverse contexts. Through such collaborative engagement, the community not only extends the boundaries of applied linguistics but also advances the co-construction of knowledge within digitally mediated environments.

An Exploration of the Role of Language Teachers in DAL

Furthermore, findings from the first study also suggested that teachers' roles should evolve toward fostering interactive teacher-student engagement in language teaching, while their beliefs regarding GenAI utilization should shift from skepticism to trust. This can be further elaborated through the lens of the community of practice (Wenger, 1998) in future DAL, which is characterized by flexible boundaries, openness, and the flow of cross-disciplinary knowledge. Its boundaries are deliberately open and adaptable, welcoming contributions from researchers, educators, and technology developers across diverse disciplinary backgrounds. This openness enables the rapid assimilation of emerging technologies, such as GenAI, which allows language learners to participate in simulated communicative contexts, thereby enhancing both the authenticity and interactivity of the learning experience. Additionally, the community's flexible structure ensures responsiveness to the continuous evolution of digital technologies. As innovations such as virtual reality (VR) and augmented reality (AR) gain traction, the community can promptly recalibrate its research focus to incorporate these tools into linguistic inquiry and pedagogy, fostering more immersive and experiential modes of language learning and research.

Critically, the teacher's role in fostering interactive teacher–student engagement within language education empowers educators to embed GenAI tools into collaborative and reflective pedagogical practices. It also enables teachers to integrate traditional teaching methodologies with emerging technological paradigms. This professional transformation marks a shift from teachers as knowledge transmitters to facilitators and innovators who actively guide learners toward creative, autonomous, and inquiry-based learning. In this regard, the future trajectory of DAL can be aligned with the cohesion dimension of the communities of practice framework (Wenger, 1998), which arises from shared objectives and a culture of sustained collaboration among its members, a factor of particular significance in digital technology, enhanced applied linguistics. Within this framework, participants collectively advance the integration of digital technologies by formulating critical pedagogical and ethical inquiries, co-developing digital platforms, and collaboratively addressing technical and moral challenges that accompany technological transformation in linguistic research and pedagogy. Critical questions, such as how to ensure cultural sensitivity in GenAI-driven language learning tools or how to promote fairness and inclusivity in technology implementation, require sustained interdisciplinary dialogue and cooperative problem-solving. Digital platforms, including social media, academic forums, and online learning communities, play a pivotal role in maintaining this cohesion, functioning not only as spaces for knowledge exchange but also as networks that foster mutual trust, shared responsibility, and long-term collaborative engagement among members.

Moreover, teachers should be supported in evolving their belief in developing comprehensive, evidence-based evaluation frameworks to assess the pedagogical affordances and potential risks of GenAI integration, thereby ensuring the informed and sustainable implementation of technology in language teaching (Yao et al., 2025a). Situated within this framework, the future direction of DAL can be reflected in the long-term sustainability of communities of practice, which fundamentally depends on their technological literacy and their capacity for dynamic responsiveness to the evolving needs and expectations of their members. In the rapidly shifting landscape of digital technology, communities of practice in applied linguistics should engage in continuous learning, adaptation, and innovation. As technologies such as generative GenAI, speech recognition, and machine translation advance, these communities are required to regularly update research methodologies and pedagogical tools to preserve theoretical relevance and practical applicability. Sustaining such responsiveness ensures that communities remain

catalysts for innovation, capable of addressing emerging challenges in Digital Applied Linguistics. Therefore, these dimensions delineate pathways for interdisciplinary collaboration grounded in the framework of communities of practice, providing theoretical insight and practical guidance for the strategic and effective integration of digital technologies into linguistic research and pedagogical practice.

Reflection on Teacher Agency

Findings from the second study revealed that teacher agency is shaped by the dynamic interplay between external pressures and internal aspirations in relation to GenAI integration. Precisely, teacher agency emerges as an outcome of the reciprocal interaction between personal motivation and contextual empowerment. While Jenkins' (2019) framework effectively distinguishes between passive, proactive and reactive forms of teacher agency, this model does not fully capture the evolving complexity of teacher agency within the domain of DAL. In the present study, *Jason*'s case exemplified proactive agency, characterized by adaptation to institutional pressures and the influence of external structures. Operating within a supportive environment that provided institutional guidance, collegial collaboration, and access to technological resources, *Jason* experienced a strong sense of obligation to conform to GenAI-related transformations driven by the competitive educational environment in Hong Kong. Similarly, *Chloe*'s experience reflected reactive agency, though her adaptation occurred in a context of limited institutional support and collaboration. *Jane*'s experience in mainland China described a form of passive agency, in which she actively recognizes the importance and inevitability of GenAI adoption yet remains constrained by institutional inertia, limited structural support, and an intensely competitive *Neijuan* environment. Rather than exercising full pedagogical or research autonomy, her engagement with GenAI is shaped by anxiety about falling behind peers and students' expectations, leading to compliance-driven adoption pressures rather than self-directed innovation. This passive agency reflects how individual teachers' choices are negotiated within broader systemic, technological, and evaluative constraints, where agency is expressed more as coping and adaptation than as proactive transformation. These cases reinforce Jenkins' (2019) conceptualization of agency, wherein teachers are required to modify instructional content and time allocation in response to administrative mandates. The high motivation to adapt stemmed largely from a desire to mitigate potential negative impacts of top-down reforms on teaching quality and student learning.

In particular, *Jane*'s concern about becoming an "outdated teacher", *Jason's* desire to seek progress in using GenAI, and *Chloe*'s self-initiated exploration of GenAI tools illustrate the dynamic nature of agency, driven by personal interest, curiosity, and pedagogical innovation. These instances reveal that agency emerges when teachers actively transform institutional expectations into opportunities for professional growth and contextual innovation. Collectively, the dual manifestations of passive, reactive and proactive agency underscore the temporal and adaptive nature of teacher agency in DAL, highlighting how it evolves through ongoing negotiation between institutional demands and individual aspirations. Consequently, our study argues that teacher agency is enacted through the dynamic alignment of personal intentions with contextual affordances, as educators continuously recalibrate their responses to external expectations and internal motivations. Importantly, when teachers perceive themselves as valued and respected members of their institutional community, their sense of agency is strengthened. In future directions, fostering such recognition and support can empower teachers to develop AI literacy and confidence, enhance their participation in DAL research and practice, and mitigate the stress associated with technological transformation.

Final Reflections on DAL: What is it and Where we are in the GenAI Context?

Enlightenment from Study 1

The integration of GenAI into language education necessitates a re-conceptualization of DAL. No longer defined solely by the digitization of materials, DAL must now be understood as a complex, socio-technical ecosystem where cognitive development, pedagogical ethics, and professional identity intersect. Synthesizing recent findings across learner, instructional, and teacher dimensions in the first study reveals that DAL is evolving from a discipline of computer-assisted practice to one of intelligence-augmented co-construction.

The Cognitive and Affective Dimension: DAL as Mediated Engagement

From the learner's perspective (Theme 1), DAL is increasingly defined by the interplay between affective engagement and metacognitive regulation. Research indicates that GenAI does not merely transmit knowledge but fundamentally alters the learner's psychological relationship with language acquisition. By reducing anxiety and offering personalized interactivity, GenAI fosters a "safe" environment that enhances motivation and acceptance of technology. However, this shifts the focus of DAL from linguistic competence to technological metacognition. Effective learning in this era requires students to transcend passive consumption and develop active self-regulation strategies—such as prompt engineering and systematic reasoning. Consequently, DAL must now account for a "digital divide" based not on access to hardware, but on the cognitive capacity to leverage AI for constructive feedback and deep processing.

The Pedagogical Dimension: DAL as a Balance of Efficiency and Ethics

From an instructional standpoint (Theme 2), DAL emerges as a field of principled trade-offs. The application of GenAI as a translation assistant and automated assessment tool highlights a shift in pedagogical values: moving away from the mechanical correction of grammar and towards higher-order rhetorical strategies. This allows DAL to transcend the spatial and temporal limitations of the traditional classroom, offering continuous, adaptive tutoring. However, this efficiency creates an urgent ethical imperative. DAL cannot be purely technocratic; it must address the limitations of AI in understanding cultural nuance, emotion, and creative reasoning. Therefore, a mature understanding of DAL posits that technology is not a replacement for human pedagogy but a substrate that requires "human-in-the-loop" oversight to prevent the erosion of critical thinking and to ensure equitable educational outcomes.

The Professional Dimension: DAL as Identity Transformation

Finally, the role of the teacher (Theme 3) frames DAL as a site of identity negotiation and dynamic belief evolution. The introduction of GenAI forces a departure from the traditional "sage on the stage" model toward a learner-centered ecology where teachers act as facilitators and co-constructors of knowledge. This transformation redefines the teacher's professional identity—potentially into a "micro-celebrity" or "intimate peer"—who bridges the gap between expert authority and student experience. Crucially, this implies that DAL is deeply influenced by teacher agency; the successful integration of technology depends on how educators evolve their beliefs from skepticism to affirmation through social and self-regulation. Thus, DAL is ultimately grounded in the teacher's capacity to adapt, turning the disruption of AI into an opportunity for professional renewal and lifelong learning.

Enlightenment from Study 2

The comparative analysis of *Jane* in mainland China, *Jason* in Hong Kong and *Chloe* in Macau fundamentally reframes DAL from a purely technical discipline into a complex, situated

socio-professional practice. These findings demonstrate that the integration of GenAI is not a uniform technological upgrade but a divergent experience shaped by the friction between institutional affordances and individual teacher agency. DAL, therefore, is best understood as an "evolving ecology" where the adoption of digital tools is determined less by the software itself and more by the specific tension between external environmental pressures and internal pedagogical motivations.

The distinction between passive, reactive and proactive agency offers a critical lens for understanding how DAL is operationalized in different contexts. *Jason*'s experience in Hong Kong illustrates proactive agency, where DAL becomes a mechanism of survival within a hyper-competitive, resource-rich environment. Despite having robust institutional support, his adoption of GenAI is driven by motivation and interest. In contrast, *Jane* encountered "invisible pressure" and the fear of falling behind peers. In this context, DAL is characterized by a "passive-adaptive" stance; the teacher masters the technology to comply with top-down mandates and maintain professional legitimacy yet struggles with the "breathlessness" of constant acceleration and the ethical burden of student reliance on AI. Here, DAL is a normative standard that risks crowding out intrinsic motivation with the necessity of "going with the flow."

Conversely, *Chloe*'s experience in Macau highlights reactive agency, redefining DAL as an act of intellectual resilience and grassroots innovation. Operating within an environment of institutional inertia—metaphorically described as an "ostrich burying its head"—her engagement is fueled by personal curiosity rather than policy. This "reactive-exploratory" orientation suggests that DAL can flourish even in resource-scarce environments through the sheer force of a teacher's internal drive. However, this form of DAL is labor-intensive; it requires the teacher to "dance with shackles," actively seeking knowledge outside of their immediate community to overcome the conservative "comfort zones" of their peers. This contrast reveals that the "Digital" in Applied Linguistics acts as an amplifier of existing institutional cultures, creating vastly different professional lived experiences for educators.

Ultimately, these three cases reconceptualize the DAL practitioner not merely as a user of technology, but as a negotiator of context. Teacher agency in this domain is revealed to be a "temporally contingent process" rather than a fixed attribute. Whether navigating the ethical anxieties of a high-tech classroom or the isolation of a low-tech one, teachers are continuously balancing external expectations with internal aspirations. A mature understanding of DAL, therefore, must account for this dynamic interplay: it is a discipline defined by the ongoing, often difficult, process of adaptation, reflection, and identity transformation as educators strive to maintain pedagogical integrity amidst the disruptive forces of the AI era.

Conclusion

To understand DAL in the current era is to recognize that we have moved beyond simple "computer-assisted" practices into a phase of fundamental transformation. Where we are now is defined by the integration of GenAI, a shift that is not merely adding new tools to the classroom but is actively reshaping the ontology of language education itself. DAL today is best understood as a dynamic ecosystem where technological affordances, teacher agency, and pedagogical ethics continuously intersect.

Where we are: A Period of Revitalization and Redefinition

Currently, the field is witnessing a widespread revitalization driven by GenAI. This technology has injected a new dynamism into student language learning while simultaneously expanding the horizon for teacher professional growth. We are at a pivotal moment where DAL is no longer just about how we teach, but who the teacher is. The integration of GenAI is compelling

educators to redefine their professional identities and enhance their pedagogical competencies. Consequently, the discipline is charting a new trajectory where "success" is defined by the teacher's ability to exercise greater agency within technology-mediated contexts, fostering a multitude of innovative instructional approaches that were previously impossible.

What it is: A Discipline of Balanced, Reflective Practice

However, a mature definition of DAL must encompass more than just innovation; it is equally defined by its constraints and responsibilities. The field is now characterized by the tension between immense pedagogical potential and significant ethical challenges. Therefore, DAL is not simply the application of technology, but the critical management of it. It requires teachers and researchers to adopt a balanced and reflective stance, navigating the risks inherent in AI use alongside the opportunities. Ultimately, the long-term vitality of DAL depends on this equilibrium: leveraging the power of GenAI to empower learners while proactively addressing the ethical, practical, and cognitive implications of a machine-augmented linguistic world. DAL still has a long way to go.

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Appendix A

Table 1. Studies included for systematic reviews

	Authors (year)	Title	Journal	Purposes	Findings
1	Abdelhalim, S. M. (2024)	Using ChatGPT to promote research competency: English as a Foreign Language undergraduates' perceptions and practices across varied metacognitive awareness levels	Journal of computer assisted learning	This study explored EFL undergraduates' perceptions and practices regarding the use of ChatGPT to develop research competence.	Qualitative analysis revealed differing ChatGPT perceptions and uses between high- and low-MA groups, ranging from replication to idea generation and guidance seeking.
2	An, X., Chai, C. S., Li, Y., Zhou, Y., & Yang, B. (2023).	Modeling students' perceptions of artificial intelligence assisted language learning	Computer Assisted Language Learning	The study investigated EFL students' intentions to use AI for L2 learning and the influence of technological, social, and motivational factors.	Performance expectancy, cultural interest, and instrumentality-promotion predicted AILL use across both groups, while effort expectancy and social influence predicted it only for juniors, and AI learning experience only for seniors. Facilitating conditions showed no effect.
3	Guan, L., Zhang, E.Y. & Gu, M.M. (2025)	Examining generative AI–mediated informal digital learning of English practices with social cognitive theory: a mixed-methods study	ReCALL	This research investigates how generative AI can be applied in informal digital English learning, exploring its role in supporting language acquisition and the difficulties educators encounter in leveraging AI tools.	Findings reveal that incorporating GenAI into informal digital English learning fosters notable gains in college students' speaking skills, addressing both technological affordances and human-centered learning considerations.

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	Authors (year)	Title	Journal	Purposes	Findings
4	Hao, Z., Fang, F., & Peng, J. E. (2024)	The integration of AI technology and critical thinking in English major education in China: Opportunities, challenges, and future prospects.	Digital Applied Linguistics	This research responds to initiatives promoting the integration of AI and critical thinking in English major programs in China.	AI can improve learning and academic performance, yet its use entails ethical and pedagogical risks.
5	Huang, J., & Mizumoto, A. (2024)	Examining the effect of generative AI on students' motivation and writing self-efficacy.	Digital Applied Linguistics	This study investigates how generative AI, influences EFL learners' motivation and writing self-efficacy.	The use of ChatGPT enhanced students' Ideal L2 Self, L2 Learning Experience, and writing self-efficacy, though it did not affect Ought-to L2 Self-motivation.
6	Li, X., Zhang, J., & Yang, J. (2024)	The effect of computer self-efficacy on the behavioral intention to use translation technologies among college students: Mediating role of learning motivation and cognitive engagement.	Acta Psychologica	This study measures computer self-efficacy, learning motivation, cognitive engagement, and behavioral intention to use translation technologies.	Computer self-efficacy predicted intention to use translation technologies through the chain mediating effects of learning motivation and cognitive engagement.
7	Mizumoto, A., & Eguchi, M. (2023)	Exploring the potential of using an AI language model for automated essay scoring	Research Methods in Applied Linguistics	This study aims to utilize this technology for automated essay scoring (AES) and to assess its reliability and accuracy.	AES with GPT showed reliable accuracy and could effectively support human assessment, with linguistic features improving scoring precision.

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	Authors (year)	Title	Journal	Purposes	Findings
8	Pan, L, Zhang, D. (2024)	Unveiling online identity construction: A case study of language teaching micro-celebrities on Bilibili.	Digital Applied Linguistics	This research explores the identity formation of three language teaching micro-celebrities on Bilibili, a major Chinese video-sharing site featuring animation, comics, and games (ACG).	Micro-celebrities strategically perform multifaceted identities, portraying themselves as skilled educators, friendly peers, and entrepreneurial actors.
9	Rad, H. S., Alipour, R., & Jafarpour, A. (2024)	Using artificial intelligence to foster students' writing feedback literacy, engagement, and outcome: A case of Wordtune application.	Interactive Learning Environments	The purpose of this study is to investigate AI use in writing feedback and suggest directions for future research on technology-enhanced practices.	The AI tool Wordtune boosted writing performance, engagement, and feedback literacy, and was positively received by students.
10	Teng, M. F. (2023)	Scientific writing, reviewing, and editing for open-access TESOL journals: The role of ChatGPT.	International Journal of TESOL Studies	ChatGPT's impact on scientific writing, reviewing, and editing in open-access journals is significant and cannot be overlooked.	The rise of ChatGPT poses obstacles for academic publishing due to the difficulty of distinguishing AI- from human-authored papers.
11	Teng, M. F. (2024)	A Systematic Review of ChatGPT for English as a Foreign Language Writing: Opportunities, Challenges, and Recommendations.	International Journal of TESOL Studies	Through a systematic review of 20 pertinent studies, this research explores ChatGPT's impact on EFL writing.	The review suggests that AI integration is transforming EFL writing instruction, presenting both opportunities and challenges, and offers pedagogical recommendations.
12	Teng, M. F. (2024)	ChatGPT is the companion, not enemies": EFL learners' perceptions and experiences in using ChatGPT for feedback in writing	Computers and Education: Artificial Intelligence,	The present research investigates students' experiences and perceptions of ChatGPT in EFL writing to fill a gap in the literature.	Findings indicate that AI support benefits writing outcomes, and qualitative data largely confirm this, despite participant concerns regarding ChatGPT.

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	Authors (year)	Title	Journal	Purposes	Findings
13	Teng, M. F. (2025)	Metacognitive awareness and EFL learners' perceptions and experiences in utilising ChatGPT for writing feedback.	European Journal of Education	The study examined how EFL students perceive and engage with ChatGPT for writing feedback.	Students' writing experiences differed significantly, with ChatGPT behaviors regarding replication to effective feedback use.
14	Teng, M. F. (2025)	Examining longitudinal development of writing motivation in the GenAI context: A self-determination theory perspective	Learning and Motivation	This longitudinal study explores motivation development in Chinese EFL writers within GenAI-supported writing contexts, using Self-Determination Theory as a framework.	Analyses show that GenAI use significantly boosts motivation over time, following a curvilinear trajectory of rapid initial growth that gradually plateaus.
15	Xu, J., Li, J., & Yang, J. (2024).	Self-regulated learning strategies, self-efficacy, and learning engagement of EFL students in smart classrooms: A structural equation modeling analysis.	System	Aiming to improve AI-driven EFL learning, this study explores SRL strategies, self-efficacy, and engagement and their relationships.	SRL strategies influenced learning engagement indirectly, with self-efficacy serving as a full mediator.
16	Yang, Y & Chen. L (2025)	Beyond concordances: exploring GenAI-assisted data-driven learning for English periphrastic causative constructions from a sociocultural perspective	Computer Assisted Language Learning	This study, grounded in sociocultural theory, examines GenAI integration in computer-based L2 causative construction learning.	CBLP promoted causative construction learning, but GenAI integration mainly aided comprehension and retention for lower-level learners, with limited impact on production; higher-proficiency learners showed consistent gains across conditions.

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	Authors (year)	Title	Journal	Purposes	Findings
17	Yang, S., Liu, Y., & Wu, T. C. (2024).	ChatGPT, a new "Ghostwriter": A teacher-and-students poetic autoethnography from an EMI academic writing class.	Digital Applied Linguistics.	The study explores the experiences of one EFL teacher and two international students in a Thai private university's English-medium academic writing course.	More than an assistant, ChatGPT acts as a pervasive "ghostwriter," necessitating careful use. This study provides guidance for its ethical and effective integration in EFL writing classes.
18	Yao, Y., Sun, Y., Zhu, S., & Zhu, X. (2025).	A qualitative inquiry into metacognitive strategies of postgraduate students in employing ChatGPT for English academic writing.	European Journal of Education	The study investigates how postgraduate students employ metacognitive strategies when using ChatGPT for English academic writing.	While many themes reflected patterns in other contexts, certain metacognitive strategies (e.g., debugging) emerged uniquely in GenAI-supported writing.
19	Yao, Y., Zhu, X., Xiao, L., & Lu, Q. (2025).	Secondary school English teachers' application of artificial intelligence-guided chatbot in the provision of feedback on student writing: An activity theory perspective.	Journal of Second Language Writing,	This research explores how English teachers use AI-guided chatbots to facilitate writing feedback	The study shows AI and teacher feedback complement each other and identifies factors shaping teachers' use of AI chatbots in writing.
20	Yi, Y., Cho, S., & Jang, J. (2022).	Methodological Innovations in Examining Digital Literacies in Applied Linguistics Research.	Tesol Quarterly	The article examines novel research methods and techniques for investigating complex digital literacy practices, experiences, and skills.	Using techniques such as screencasts, photos, and video diaries enhances participant agency and supports language teaching and learning.

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	Authors (year)	Title	Journal	Purposes	Findings
21	Yeung. S (2025)	University students' engagement with generative AI-supported automated writing evaluation (AWE) feedback	Journal of Second Language Writing	This study examines students' behavioral, cognitive, and affective engagement with feedback via the GenAI-powered AWE platform, Learnalytics.	Engagement was shaped by individual differences and participants' writing processes and experiences.
22	Zhou, J., Huang, T., & Chen, S. (2024).	Pre-service teachers' changing beliefs in a digital humanity course: Three cases of ELT teachers.	Digital Applied Linguistics	This research explored the belief change process of three ELT pre-service teachers in a U.S. digital humanities teacher education course.	Findings indicate that student teachers' beliefs followed diverse change processes throughout the course, from awareness to reversal.
23	Zou, M., Reinders, H. & Amjad, F. (2025).	Understanding the potential role of GenAI-mediated informal digital learning of English (GenAI-IDLE) in the Global South: AI literacy, emotions, and willingness to communicate as outcomes.	ReCALL	This study examined how GenAI supports independent language learning.	The results indicate that EFL learners' GenAI-informal digital learning of English (IDLE) activity directly enhances AI literacy and FLE, which sequentially mediate its effect on L2 willingness to communicate.