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Navigating the contradictions of AI: critiquing AI's standardized English and developing creative bilingual possibilities

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This study examines bilingual pre-service teachers' (PSTs) perceptions and reflections on Artificial Intelligence (AI) technologies in relation to their own biliteracy and pedagogical development. Grounded in a critical language and sociocultural literacy framework, this paper features highlights from a larger research project that examines how PSTs leverage AI to develop academic literacies, create multimodal texts, and design AI-mediated lesson plans in bilingual classrooms. The study participants consist of 13 PSTs from Mandarin (8) and Spanish (5) speaking backgrounds, who were enrolled in a graduate-level teacher preparation course. For this study, we focused on a specific segment of data drawn from a reflective journal activity completed by participants. This reflective journal activity involved (i) reflecting on the affordances and constraints of AI for their own academic literacy development, (ii) designing and evaluating AI-generated multimodal texts for bilingual learners, and (iii) engaging in conversations with AI about bilingual education. Findings reveal that PSTs'engagement with AI in their biliteracy and pedagogical development, is characterized by tensions between its potential to support culturally responsive learning and its constraints undergirded by the ideologies of standardized English and monolingualism. The study concludes by highlighting its pedagogical implications for bilingual teacher education at the tertiary level.

Introduction

As the role of AI in language education continues to expand (Wei, 2023), language teacher education programs are wrestling with the complexity of supporting emerging language instructors in developing critical and ethical dispositions toward AI innovations. While research has shown that AI has significant potential to personalize instruction (Huynh, 2024), support multilingual learning (Ji et al., 2023), and assist language research and teaching (Voss, 2024), AI also raises significant concerns about reproducing algorithmic oppression (Noble, 2018), racializing processes (Dixon-Román et al., 2020), and white norms that marginalize non-dominant communities (Cortez et al., 2024; Shaw et al., 2024). In this paper, we argue that these concerns are compounded by the

ways AI tools often default to and reinforce standardized English—an abstract, idealized linguistic form historically aligned with white, middle-class norms and upheld through institutional power (Baker-Bell, 2020; Lippi-Green, 2012). This ideological norm frames the multilingual practices of minoritized students as deficient, even when those practices are linguistically rich and culturally meaningful (Flores and Rosa, 2015). Given these tensions, further research is needed to understand how AI supports and constrains language instructors working with emergent bilinguals. As part of a larger project focused on the experiences and pedagogies of 13 bilingual pre-service teachers (PSTs) enrolled in a tertiary-level teacher education program in a U.S. university, this study examines the reflections and perspectives of the PSTs vis-à-vis the roles of AI in their personal growth as bilingual individuals and professional growth as emerging bilingual instructors. In particular, the study is guided by two main research questions:

1. How do PSTs navigate the affordances and constraints of using AI in relation to their own bilingual literacy and pedagogical development?
2. In what ways, if any, do they attend to the critical and creative dimensions of using AI in bilingual education?

This study aims to shed light on how future educators are thinking about the intersections of AI, language education, and culturally responsive teaching, and it offers implications for how teacher preparation programs can support PSTs in navigating both the tensions and possibilities that emerge across these intersections.

Research design

This study comes from a larger project that draws on a series of design-based interventions in a tertiary-level teacher education program in a U.S. university. Research participants consisted of 13 bilingual PSTs. Five participants are Spanish-English bilinguals, while the other eight are Mandarin-English bilinguals (see Appendix). During their engagement with design-based interventions, participants engaged with socio-analytic artifacts (Vossoughi, 2014)—culturally mediated tools or habits of mind used to collaboratively analyze, interpret, and respond to social problems—with an emphasis on critical bilingual literacy development. Participants were also provided with various opportunities to draw on these texts to experiment with the affordances and constraints of AI for bilingual learners during their field teaching practice. The use of AI tools in the course was optional. We recognized that opting out of using AI, or selectively using it, could signal participants' critical orientations toward sociotechnical systems (Pea and Cole, 2019) or reflect a desire to sustain specific literacy practices. In this way, we embraced refusal as a legitimate and agentive form of engagement with AI (Tuck and Yang, 2014). As such we embraced refusal as a legitimate and agentive form of engagement with AI (Tuck and Yang, 2014). For this study, we focused on a specific segment of data drawn from a reflective journal activity completed by participants (see Appendix). The activity was an integral part of the design-based interventions and was intended to prompt participants to grapple with issues surrounding the dynamics among AI, bilingualism, and technology-mediated learning. The reflective journal prompts

were organized around two themes. One theme centered on the roles of AI in participants' own language and academic literacy development. The other centered on participants' interpretations of using AI to support the future of bilingual education, including their conversations with AI about the ideologies it holds regarding bilingual education. As will be further illustrated below, our decision to focus on participants' reflective journals stemmed from the recognition that the journals offered a valuable vantage point from which to unravel the nature of participants' engagement with AI within and across contexts, which, in many cases, was marked by contradictions and tensions. In this study, we argue that such tensions and contradictions can spark transformative possibilities where teacher educators can work with PSTs to support their development of critical–creative pedagogies in AI-mediated learning ecologies.

Theoretical framework

This study draws on critical language frameworks (García and Wei, 2014; Flores and Rosa, 2015) and sociocultural theories of learning and development (Vygotsky, 1978) to examine the dynamics between PSTs' engagement with AI and the ideological and racialized construction of Standardized English. Studies have shown that the sociotechnical entanglements that shape AI technologies often encode dominant cultural values, including white, middle-class norms (Benjamin, 2019; Jones, 2025; Noble, 2018). We extend these insights to bilingual classrooms by examining how AI's default outputs in standardized English reproduce monolingual ideologies that implicitly position the everyday bilingual practices of minoritized students as deficient. In this light, the use of AI in bilingual classrooms cannot be disentangled from larger histories of standard language ideology (Baker-Bell, 2020; García and Wei, 2014) and educational policies that have long subordinated minoritized language practices under the guise of standardization, correctness, or appropriateness (Flores and Rosa, 2015; Inoue, 2015; Lippi-Green, 2012).

These considerations underscore the importance of educators developing culturally responsive and syncretic pedagogical approaches to ensure that AI technologies support meaningful learning in bilingual classrooms. Through course content and activities, participants were introduced to syncretic approaches to learning, which involve the intentional reorganization of students' everyday cultural practices with academic content to develop expansive and consequential forms of literacy (Gutiérrez, 2008; Gutiérrez and Jurow, 2016). Rooted in historical practices that reconcile differing knowledge systems, syncretism positions the texts and epistemologies of non-dominant communities as central to transformative learning and literacy development. Within this framework, bilingual teachers play a critical role in co-constructing how emerging AI technologies are positioned and leveraged in relation to both their own literacies and those of their students. To examine the tensions underlying the affordances and constraints that bilingual teachers encounter when engaging with AI, we draw on Bateson's (1972) notion of double binds and contradictions (Engeström and Sannino, 2010) as generative forces for transformation. In AI-mediated bilingual learning contexts, these contradictions might manifest in the simultaneous demand

to innovate with AI while resisting its homogenization of cultures and languages. In our study, we interpret the ambivalence that PSTs express toward AI as evidence of contradictions that set the conditions for critical and pedagogical creativity to emerge.

Data analysis

In our study, we adopted a thematic analysis approach (Saldaña, 2016) to examine participants' reflective journals, their creation of multimodal texts for bilingual learners, and their conversations with AI about core bilingual education concepts and field-based dilemmas. The two authors collaboratively developed an initial codebook, guided by our research questions and key concepts from the literature. Both researchers independently coded an initial subset of the data, then met to discuss discrepancies, refine code definitions, and inductively develop additional codes that emerged from the data. Inter-coder reliability was established through an iterative process of discussion and consensus-building, which led to the development of a revised and more robust codebook. The two researchers coded the data for PSTs perceived benefits and challenges of using AI in their own writing, critiques and possibilities that emerged from using AI to design multimodal texts for bilingual learners, ambivalence around whether AI is an appropriate tool for bilingual learners, and whether participants engaged in conversations with AI that were marked by contestation or uncritical acceptance of AI-generated content. Based on the coding process, we identified four main codes organized with reference to the two research questions (see Appendix). The first two codes, (1) AI Supporting Language Development and Multilingual Identities and (2) AI Constraining Language and Literacy Learning were anchored in efforts to address the first research question. Specifically, the first code captured instances where PSTs reflected on how AI tools supported their own language and multilingual development. The second code foregrounded moments when PSTs identified challenges, limitations, and critiques of AI with respect to their own language and multilingual development (e.g., misrepresentations, erasure, distortions of authentic language practice). The last two codes, (3) AI expanding critical–creative pedagogies in bilingual learning ecologies and (4) AI constraining criticality and creativity in bilingual learning ecologies encapsulated our endeavors to address the second research question. In comparison to the first pair of codes, the third code covered instances of PSTs reflecting on the perceived affordances of AI technologies for designing critical and creative bilingual learning activities (e.g., creation of authentic texts, support students' imagination, support in culturally responsive curricula). The fourth code highlighted moments when PSTs grappled with the constraining aspects of AI for critical and creative bilingual teaching (e.g., algorithmic bias, flattening diverse voices, inauthentic text productions). In addition, we also counted the number of instances each sub-theme appeared across the dataset to further inform our interpretation of the patterns regarding how PSTs were making sense of AI in their own bilingual literacy and pedagogical development. This reflexive thematic analysis allowed us to explore how participants' interactions with AI influenced their development as bilingual individuals and bilingual educators, highlighting the nuanced ways in which

AI can both support and constrain pedagogical practices in multilingual contexts.

Findings

AI supporting and constraining language and academic development

All participants in this study reported using AI to support their own language and academic literacy development. Participants shared how AI provided translation assistance, clarified academic texts, and enabled them to brainstorm ideas to enhance their writing process. From their standpoint, AI technologies became important supports in navigating the challenges of writing within and across languages and academic genres. For example, P2 wrote, "As a bilingual student, AI has significantly supported my academic literacy development, particularly in bridging the gap between my first and second languages." Several participants also emphasized AI's ability to generate and confirm ideas as they engaged with academic content. For example, P11 reflected, "I think that one of the benefits of AI is that you can find quick answers for everyday questions." Similarly, P7 shared, "AI (mostly ChatGPT) has helped me to critique my current learning, and has served as another voice rather than representing my own in helping me craft my writing practices." Interestingly, P7 positioned AI as a collaborative technology that is capable of critiquing writing in order to improve it. This theme of leveraging AI as a writing tutor that provides writing scaffolds was a major theme that emerged with other participants as well. As P9 explained, "AI is a great assistive technology to support academic writing if used appropriately. I would use it to give suggestions to my writing in terms of logic, cohesiveness, and grammar." In response to a separate prompt in her reflection journal, the same participant noted, "In this case, I would use AI to polish my writing in terms of grammar and certain expressions in L2 but not overly rely on it to create content… to not lose my original way of thinking." This reflection highlights another theme that emerged around PSTs' perceptions—that AI can be a collaborative and comprehension tool that supports bilingual academic literacy development, as long as it does not serve as a replacement for their own cognition and language development.

Despite the perceived affordances of AI for their own academic and bilingual development, a few participants also developed critiques of the affordances of AI technologies. Across their reflections, participants revealed how AI could distort, misrepresent, or oversimplify the everyday dynamism of bilingual communication. In several cases, participants noted that AI tended to marginalize diverse language practices by defaulting to dominant linguistic norms. For example, participants frequently reflected on issues of tone, accuracy, and authenticity when using AI for academic writing. As P1 noted, "I think AI writing style is more formal and cold than mine," a sentiment echoed by P4 who stated, "Comparing AI-generated writing and my own, AI-generated text lacks emotion, authenticity, and personality." These reflections suggest that despite its utility in supporting writing, pre-service teachers recognized how AI reproduced standardized, mechanical grammar patterns. These patterns reflected dominant language ideologies that erased the tone, rhythm, and heteroglossic character

of bilingual expression. Rather than embracing linguistic variation, AI outputs often aligned with normative expectations shaped by whiteness and monolingualism, which flattened participants' voice and tone in ways that felt inauthentic.

Some participants also raised concerns about linguistic and cultural misrepresentations rooted in these same ideological defaults. P1, for instance, used AI to compose a translanguaging poem and reflected, "For instance, '这里没有家的味道' (There is no taste of home) was misrepresented in translation. AI distorted the meaning of this saying to 'there are no familiar faces,' which damaged the cultural authenticity of the expression." This moment illustrates how AI can misread cultural–historical meanings by filtering them through dominant language norms, which Buolamwini (2023) refers to as the "coded gaze." In doing so, AI misrepresents nuanced expressions and reinforces white cultural and linguistic standards, while distorting minoritized voices. As P8 noted, "While AI can be a helpful tool, it's important to strike a balance, making sure that the writing remains personal and genuinely reflective of the individual's voice." Consequently, our findings indicate that while PSTs recognized the creative affordances of AI for their own language and academic literacy development, they also wrestled with the contradictions of these affordances and developed critical stances toward the complex entanglements shaping AI processes and outputs.

Creativity and criticality around AI in bilingual learning ecologies

In this section, we present findings on how PSTs perceived the potential of AI technologies to support critical and creative bilingual learning for their students. Building on Jones (2025), we argue that though all participants found creative uses for AI in their pedagogies, they understood this creativity insofar as it related to their criticality around the technologies. In terms of the affordances of AI technologies for their pedagogies, many participants reflected on how AI can support the development of bilingual, multimodal, and culturally relevant texts. For several participants, AI enabled them to create unique and personalized texts that bilingual learners could engage with. For example, P10 noted, "AI generated multimodal texts could be particularly useful for teachers who have students that speak a language that the teacher doesn't speak." Similarly, after P5 leveraged AI to develop a poem about Taiwan for a Taiwanese student she was working with, she shared, "The AI-generated dialogue seamlessly blends English and Chinese, capturing the lively spirit of a Taiwanese night market." In addition, P11 proposed, "We could use AI generated images to showcase the hidden stories and the silent voices in the curriculum." These reflections illustrate how AI can support PSTs' creativity as they design lessons and artifacts that are both individualized and culturally relevant.

Despite these affordances, all participants in our study understood that their criticality around AI technologies played a central role in its creative use. Several participants addressed the inauthentic aspects of AI-generated content, especially in multilingual contexts. P13 shared, "But it has limitations.

AI-generated content sometimes does not fit [the student's] experience." Attuned to these limitations, P5 critiqued linguistic hierarchy embedded in AI-generated materials, stating that AI tends to "favor dominant language varieties present in the training data." This concern was echoed by P4, who noted, "For example, reading the AI-generated texts in English and Spanish made me think that AI thinks in binaries—it did not reflect my bilingual experience." P8 added, "However, educators need to be mindful of the tone, language, and cultural assumptions that might be embedded in AI-generated texts." Taken together, these reflections underscore how algorithmic outputs can reproduce dominant language ideologies, erase cultural specificity, and distort the linguistic repertoires of students. While many participants recognized the creative potential of AI for supporting bilingual learning, they approached this potential with healthy skepticism and critical awareness. Their reflections suggest that without a sustained critical stance that challenges AI's default logics, PSTs risk generating static and deficit-oriented representations of their students, which undermine rather than support creative and culturally responsive pedagogy.

Conclusion

In this study, we called attention to the noticeable contradictions underpinning PSTs' reflections on both their AI-mediated language development and their engagement with AI as emerging K−12 bilingual instructors. The contradictions identified in the study serve as a reminder of the inseparability between PSTs' navigation of their own bilingual journeys and their evolving sense of becoming bilingual instructors. More importantly, these contradictions illuminate the constant interplay between the ways in which AI affords and constrains PSTs' agency to (re)construct their bilingual identities and (re)envision the possibilities of bilingual education and the responsibilities of bilingual instructors. In particular, while participants recognized AI's potential to scaffold writing, translation, and multimodal design (Ji et al., 2023; Wei, 2023), they also critiqued how AI reinforced standardized English and erased the affective, culturally nuanced qualities of bilingual expression (Baker-Bell, 2020; Flores and Rosa, 2015; Lippi-Green, 2012). For teacher educators at the tertiary level, the findings of the study prompt us to consider how contradictions around PSTs' engagement with AI can be productively leveraged as pedagogical entry points. That is, rather than flattening these tensions, teacher education programs can invite PSTs to dwell in them as "teachable moments" that serve to nurture a nuanced understanding of both one's contingent reliance on AI and the transformative potential embedded therein. For example, building on the reflective journal approach used in the present study, teacher educators may consider incorporating similar journaling practices, dialogic discussions, and/or scenario-based activities that prompt PSTs to interrogate the sociopolitical implications of AI in bilingual education.

In this study, we demonstrated how the reflective journal activity can support PSTs in discerning not only how AI shapes language norms and classroom practices, but also how they,

as instructors, may repurpose AI to affirm students' linguistic and meaning-making repertoires. In doing so, teacher education can promote ethically grounded orientations toward AI. These orientations may equip future bilingual instructors to critically and creatively engage with the AI-mediated learning environments. It is important to note that this study has a few limitations. For example, future research could expand the sample and use participatory methods to capture how PSTs make real-time decisions about AI in lesson planning and classroom contexts. Also, our focus on a single teacher preparation course in a U.S. university inevitably limited the generalizability of our findings. Therefore, we are careful not to suggest a one-size-fits-all approach to implementing the principles and practices discussed. Nevertheless, by centering the critical and creative use of AI to challenge the ideologies of standardized English and monolingualism, a struggle shared by language educators in multilingual societies globally, we argue that our study holds broader relevance. With appropriate contextualization, it can inform teacher preparation efforts worldwide, where language educators continually navigate the dual demands of integrating AI and resisting monolingual ideologies in their classrooms (Dixon-Román et al., 2020).

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving humans were approved by Teachers College, Columbia University Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

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The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declare that Gen AI was used in the creation of this manuscript. The author(s) used ChatGPT version 4.0 for grammar checks and grammatical edits.

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Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/feduc.2025.1616458/full#supplementary-material

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