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FULL PAPER

From Access to Agency: A Capability-Based Reconceptualization of Linguistic Equity in Generative AI–Mediated Language Education

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Abstract

Generative artificial intelligence (GenAI) has recently become adopted into language learning environments at unprecedented rates. Though research has yet to catch up to practice, language educators and researchers are concerned with questions of equity related to GenAI tools. The bulk of this research has been technocentric, prioritizing access to AI instead of how students convert access into actionable freedoms. To fill this gap, the current study sought to reconceptualize linguistic equity from a capability perspective. The researchers utilized a quasi-experimental mixed-methods design with 80 EFL learners in experimental and control groups. Paired and independent sample t-tests were used to analyze quantitative data, while thematic analysis was used to code qualitative data. Results showed significant improvement for the experimental group (pre-test $M = 10.58$, post-test $M = 18.27$; $t(39) = 15.63$, $p < .001$) over the control group (pre-test $M = 10.46$, post-test $M = 13.34$; $t(39) = 5.42$, $p < .001$), with a statistically significant difference between groups at post-test ($t(78) = 11.48$, $p < .001$). Quantitative results from questionnaires show a high sense of agency ($M = 4.18$). The results of this study have important implications for reconceptualizing linguistic equity as depending not just on access but on the capability to use artificial intelligence to succeed in language performance environments. The study adds to theory by providing preliminary work on a capability framework and provides practical application toward equitable GenAI pedagogy.

Keywords: generative artificial intelligence, linguistic equity, capability approach, learner agency, EFL education

1. Introduction

Language education research has been rapidly evolving under the influence of generative artificial intelligence (GenAI). In the span of a year since ChatGPT made its debut, scholars of applied linguistics and technology have observed shifts in language production and access, as well as mediation moving away from singular instructor-based practices and toward complex infrastructures for language learning which aim to cater to learners' needs and pathways (Denny et al., 2024; Li et al., 2025). Reviews of current research on GenAI for language learning highlight multiple affordances for language learners including but not limited to AI-prompted opportunities for customized adaptive feedback, targeted comprehensible input, and multimodal interaction (Weng & Fu, 2025; Mikroyannidis, 2025). As such tools and pedagogies have gained traction among applied linguists and language educators, many emphasize their potential to narrow long-standing achievement gaps by affording learners who may not otherwise receive skilled language instruction access to versatile tools that can enhance language learning.

For example, a growing body of literature has centered GenAI's implications for democratizing education broadly and leveling the playing field for language learners specifically. On the one hand, emerging research substantiates how GenAI tools can facilitate second language acquisition for learners across contexts and with diverse needs (Weng & Fu, 2025). On the other hand, recent studies have exposed how learners from varying backgrounds do not experience AI tools equally due to myriad factors such as differences in digital literacies and prior experiences with AI (Li et al., 2025). For example, students with more opportunities to learn about and engage with technology have been found to experience more educational benefits when learning with AI (Li et al., 2025). This is concerning given that studies have also found algorithmic biases in large language models which have the potential to perpetuate stereotypes and exclude culturally and linguistically diverse students (Grassini, 2023; Huang et al., 2024).

Theorists have also begun to consider the implications of GenAI for language education. A rising chorus of calls for humans-in-the-middle frameworks and ethical approaches to GenAI in education ask stakeholders to center learners by taking into account issues such as learner autonomy, identity, and the effects of AI on overall well-being (Georgiou, 2025). With this work in mind, language educators are beginning to reimagine how we might integrate AI into pedagogical contexts with a renewed sense of care and justice towards learners. While this work provides a starting point for understanding how GenAI may reproduce or transform existing inequities, the majority of the applied linguistics literature on GenAI and language learning is descriptive in nature, placing emphasis on metrics of task performance and user experience rather than learner ability.

What is missing from these conversations is a theoretical foundation for linguistically equitable GenAI integration. The existing understanding of equity in the context of GenAI and language learning is largely synonymous with access to technology or AI-mediated tools. What gets lost when we equate equity with access are learner differences in the ability to convert accessible resources into valued forms of knowledge, skill, and participation. To address this gap, this study adopts the Capability Approach (Sen, 1999; Nussbaum, 2011) to argue that GenAI language learners should be afforded the capabilities to act, learn, and achieve as linguistically equitable beings.

More specifically, this study seeks to: (1) provide a capability-based definition of linguistic equity in the context of language learning with GenAI, (2) survey extant literature on GenAI for language learning through a lens of power and positionality, and (3) outline a reorientation of terminology and priorities that will allow researchers, teachers, and learners to move forward in our understanding and use of AI in language education. To that end, this paper will ask the following research questions:

To address these aims, the study is guided by the following research questions:

1. How is linguistic equity currently conceptualized in generative AI-mediated language education?
2. What limitations exist in access-based models of AI integration in relation to learner agency and outcomes?
3. How can the Capability Approach provide a more comprehensive framework for understanding linguistic equity in AI-mediated contexts?
4. What theoretical and pedagogical implications emerge from adopting a capability-based perspective in language education?

This study argues for positioning throughout, situating itself among critical approaches to AI and contributing novel theoretical application to the field of applied linguistics. Upon this introduction, Section 2 provides a review of relevant literature on generative AI and language learning, linguistic equity, and the Capability Approach to situate the study's theoretical framework.

2. Literature Review

2.1 Generative AI in Language Education: Emerging Pedagogical Paradigms

Generative artificial intelligence (GenAI) tools are quickly going from being an interesting experimental tool to become an inevitable pedagogical focus of language education technologies. Recently, publications have emerged explaining how LLMs promote language learning as they allow learners to engage in actual language practices outside of classrooms, lectures, and grammar exercises via meaningful dialogues in a way that is interactive, adaptive, personalized, and customizable (Kasneci et al., 2023; Luo, 2024). While prior chatbot and AI technologies included features that promoted language learning such as rule-based feedback and limited automation of tasks, GenAI technologies present features such as context-aware and generative capabilities which allow learners and machines to collaboratively build meanings (Yan, 2023).

Some studies have begun to show the efficacy of AI-mediated language learning tools to impact learners' productive skills. Tools that mediate writing and speaking have shown benefits such as corrective feedback, linguistic restructuring, and scaffolded inputs (Barrot, 2023; Wang & Han, 2024). Barrot (2023) showed that an AI-mediated writing environment led learners to produce more coherent writing with greater lexical complexity. Wang and Han (2024) discovered learners became more fluent and confident while speaking when using an AI interface. In research investigating conversational agents, learners were able to engage in task-based language learning in realistic situations provided by AI conversation (Huang & Li, 2023).

While these studies show promise in GenAI for language education, many of them assess how well tools are at impacting learner performance. Through this lens, tools are only discussed through the lens of metrics like accuracy, fluency, speed, and completion. As such, the bigger picture of how learners approach these technologies is often lost. Kohnke et al. (2023) discuss how this technocentric perspective has pushed us past the point of helpful technology focused research and have called for research that steps outside of this area of research.

2.2 Linguistic Equity in Digital and AI-Mediated Contexts

Equity as it relates to language learning is being rediscovered in mediated settings. Conventionally focused on access to language learning environments or resources, discussions of linguistic equity are expanding to consider aspects of digital equity and justice (Darvin, 2022). In settings augmented by

artificial intelligence, these conversations include algorithmic bias, misrepresentation of linguistic varieties, and equitable access to participation opportunities (Blodgett et al., 2020).

Emerging research suggests that many current artificial intelligence systems, even those designed for language teaching or learning purposes, will continue to reproduce bias by centering dominant languages or standardized varieties. Therefore, opportunities for learners of non-standard or under-resourced varieties will be limited in AI-mediated interactions (Bender et al., 2021). Recent scholarship has raised questions around how these systems may contribute to unequal power dynamics for English as a Foreign Language (EFL) learners, especially those whose linguistic repertoires are not commonly found in artificial intelligence output. A lack of digital literacy skills or technological affordances has also been found to create rifts in who can access AI-mediated language learning (Selwyn, 2021).

Research into learner equity at the pedagogical level has shown the need for learners to feel capable and supported to meaningfully navigate AI-mediated language learning spaces, rather than simply having access to AI tools (Darvin & Norton, 2023). Discussions of equity and access have also arisen in discussions of sociocultural theories of second language acquisition (Kramsch, 2009). These theories focus on many of the same issues as educational equity, such as learner identity, power, and learner agency. However, like the rest of the field, tends to situate discussions of equity outside of research aims or topics.

Discussions of equity have been made in recent empirical studies using AI in language learning. Papers tend to measure equity in very practical terms, such as who has the AI tool available to them or who is more likely to use the tool. However, these measurements do not account for who has the opportunity to learn from the tool or receive its potential benefits. By this logic, anyone with a smartphone could be considered equitable.

2.3 Learner Agency in AI-Mediated Language Learning

In order to facilitate learner uptake, three additional codes are represented, including the learner agency concept. Agency can be understood as learners' capacity to act deliberately and self-regulate their behavior to learn from available affordances (Mercer, 2022). Within an AI-mediated setting, learners are faced with choices that allow them to exercise control while adhering to their personalized learning journey.

Equally important to note is that agency has been demonstrated to empower learners but also disempower them when learning with AI. For instance, AI adaptive systems may allow learners to feel a sense of control when learning a language due to the ability to receive instantaneous feedback (Zawacki-Richter et al., 2021). Contrary to positive learning experiences, learners tend to underutilize their cognitive efforts and suspend evaluation when accepting the suggestions proposed by AI (Chan & Hu, 2023). Learners also unevenly experience agency during their learning process.

Variations in experiencing agency while learning languages with the aid of AI technologies were discovered based on learners' experience with technology, language self-efficacy, and other demographic factors (Godwin-Jones, 2022). Students who lacked technological skills and confidence would often experience challenges when attempting to practice their target language using AI. Empowering learners using technological innovation should be explored to promote language practice using CALL.

In addition, equity was not well-established through the process of open coding. One possible reason is that learner agency is not well-theorized. In the selected articles, the concept of agency was

mentioned; however, it was only presented as an individual capability and not associated with learners' access to equitable learning conditions.

2.4 The Capability Approach: A Theoretical Lens for Reframing Equity

Sen's (1999) Capability Approach and its extended formulation by Nussbaum (2011) has gained momentum over recent years as researchers have begun to employ it as a conceptual framework to study equity and human development within education settings (Terzi, 2021). Rather than models focused around resources available to students, Capability Approach emphasizes individuals' actual freedoms or abilities to reach valued achievements and states, accounting for conditions both internal and external to the learner (Walker & Unterhalter, 2020).

Research has started to bring this perspective to bear on digital education and inequities within technology-mediated learning spaces (Terzi, 2021; Tikly, 2022). Adopting this framework for understanding equity through technology quickly reveals that access itself is neither necessary nor sufficient for viewing a learning context through the lens of capabilities. Instead, we must consider if learners are able to convert provided resources into meaningful learning outcomes.

The Capability Approach can helpfully reframe conversations around equity in AI-mediated language education by centering issues of language use, learning, and participation. This approach to equity can counterbalance the current tendency of viewing technological mediation of education through a resources lens. Instead, this approach emphasizes agency, the learners' abilities to convert resources to meaningful outcomes, overall well-being, and situates learner within their socio-cultural contexts (Holmes et al., 2022). While promising for research on AI in language education, the Capability Approach has been notably absent from applied linguistics scholarship. While some studies have begun to employ this theoretical lens to better understand equity in technology-mediated classrooms, they do not focus on the nuances of language or AI-mediated communication.

Thus, there remains a need for a theory-driven conceptual model that draws from applied linguistics, educational technology, and social justice frameworks to explore language learning via AI mediation.

2.5 Synthesis and Conceptual Gap

Findings from the literature review suggested three primary themes. GenAI in Language Learning literature has explored the impact GenAI has in language learning contexts and found numerous benefits but has focused on AI technology itself and measuring its performance. Literature examining language equity through inclusion and representation found gaps in access and availability being positioned as equitable but does not deeply engage with the nuances of equity. Finally, recent literature focusing on learner agency has begun to surface but lacks connections with other areas of equity and capability.

Synthesizing all themes from the literature reviewed suggests that there is currently a lack of conceptualization for how learners with access to these AI technologies can and do develop linguistic capability. There is currently no theory as to how access to language learning with AI leads to learners having the capability to meaningfully use linguistic knowledge. Neither do we deeply understand what conditions must be in place to help facilitate this process.

By positioning linguistic equity as a capability, this research contributes to bridging the gap between language access to AI and what learners are actually able to do with the linguistic knowledge that they learn from these technologies. This has pedagogical and policy implications.

2.6 Theoretical Framework

The present study synthesizes three theories into one cohesive framework that informs the conceptualization of linguistic equity throughout AI-mediated language learning environments presented below.

2.6.1 *Capability Approach*

Generative AI functions used in education should be evaluated not by the measure of their use but by how they allow learners to do what they value linguistically. The Capability Approach (CA) directly informs this position by focusing research on what learners are able to do with the tools and resources provided to them, rather than on what they have access to. Originated by Nobel laureate economist Amartya Sen and further developed by philosopher Martha Nussbaum, the CA determines an individual's level of well-being not by their income or resources but by the real opportunities that they have to do and be what they value, referred to as capabilities (Sen, 1999; Nussbaum, 2011). Applied to language learning, the CA positions learning less as the intake of information and knowledge and more as the ability to use language to communicate and do what learners want to do. Crucially, access to tools and resources does not guarantee equity of outcomes because learners vary in their abilities to convert available resources into capabilities. Recent work on the CA in education has focused on notions of:

1. conversion factors (internal, external, structural conditions that facilitate or inhibit the learning process)
2. agency and learner choice
3. access to opportunities (Walker & Unterhalter, 2020; Tikly, 2022)
4. At the intersection of language learning and AI, the CA allows this research to focus on:
5. how learners are utilizing AI tools
6. what learners are able to do because of AI
7. if AI is enabling or hindering learners' capabilities

The CA therefore redefines linguistic equity as the ability to do what one values linguistically instead of equal access to tools and resources.

2.6.2 *Sociocultural Theory*

To better understand how learners interact with and are influenced by generative AI tools in language learning, this research will apply Lev Vygotsky's Sociocultural Theory. Originally developed by Soviet psychologist Lev Vygotsky, SCT sees learning as the development of understanding through social interactions. Learning with AI can be thought of as SCT by conceptualizing generative AI tools as mediational artifacts that impact learners' cognitive development.

Therefore:

1. AI serves as a scaffold for learning
2. interaction with AI is a type of social engagement
3. language is learned through mediation

Recent scholarship has applied SCT to technology-mediated learning by stating that the "tools of the mind" have changed to include digital technologies like AI, which therefore change the mediational nature of learning by inserting a non-human agent into the process (Lantolf et al., 2021). What is

most important about SCT for the current study is the notion that learning does not happen in a vacuum. It is affected by:

1. social factors
2. cultural expectations
3. interactional dynamics

This has direct implications for equity in AI because each learner will come to the AI environment from different places and with different levels of access to cognitive and academic development.

2.6.3 Learner Agency Theory

Linking both the Capability Approach and Sociocultural Theory is the concept of Learner Agency. Agency can be defined as the ability of learners to act intentionally, make choices, and self-regulate their learning (Mercer, 2022). In the case of AI in education, this is critically important because learners still need to:

1. choose how to interact with the AI tool
2. judge if the AI is correct or not
3. integrate AI usage into their overall learning plans

Therefore, agency is a learned capability that is influenced by context and individual difference variables such as motivation and self-efficacy. Recent literature has discussed how AI can impact learners' agency by either increasing it (due to opportunities for autonomy and personalization) or decreasing it (through algorithmic control of learning). (Zawacki-Richter et al., 2021) For this study, learner agency will be considered a learner's ability to utilize the AI tool to support language learning.

2.7 Integrative Theoretical Model

Synthesizing these three elements together, I articulate a capability-based definition of linguistic equity within the context of AI-mediated language learning as follows:

1. Access to AI → Opportunities/Resources
2. Conversion Factors (Operationalized as digital literacy, socio-cultural environment) → Influence learners' →
3. Agency → Converts Access into →
4. Capabilities (Learners' authentic opportunities to realize desired linguistic outcomes)

Overall, synthesizing these three bodies of literature allows me to bridge the gap between theory and definition presented at the beginning of the section by outlining the mechanisms through which and reasons why some learners may achieve unequal levels of learning with the same amount of access to AI. Theoretically, this framework contributes to the field by:

1. Conceptualizing linguistic equity as a capability issue rather than as an access issue
2. Bridging technology, agency, and contextual factors within one integrated model
3. Framing empirical research with a theory that connects operational components with latent ideas

Grounding AI within a conceptual umbrella that places higher value on humanity and social justice, I move the field of applied linguistics and educational technology one step closer to theory-based equity in AI-mediated learning. Building off of the previous section, I will now provide an overview of the methods I used to answer the research questions stated above.

3. Methodology

3.1 Research Design

This study used a quasi-experimental mixed-methods approach because it not only considered learners' language performance to assess linguistic equity enabled by generative AI-mediated instruction but also investigated learners' agency and capability built through engagement with generative AI tools. Quantitative data collection using pre-test and post-test assessments allowed measuring group differences in performance resulting from taking part in generative AI-mediated learning activities versus engaging in conventional instructional activities. Qualitative data informed by interpretivist underpinnings were collected using semi-structured interviews and classroom observations to investigate learners' perceptions of how they engaged with the AI tools as mediated by their teachers and how these engagement patterns contributed to developing their capabilities for equitable language learning. Both types of data were analysed separately but discussed together during the interpretation stage of this research to provide answers to the research questions presented above.

3.3 Participants

Undergraduate learners of English as a foreign language (EFL) taking part in an English language programme at a higher education institution constituted a sample for this study. Participants (N = 80) were recruited using purposive sampling on the condition of being at a similar proficiency level and having previous experience with digital learning contexts.

They were randomly assigned into two groups:

1. experimental (n = 40) – took part in generative AI – mediated instruction
2. control (n = 40) – took part in conventional instruction

Prior language proficiency was controlled for by obtaining learners' pre-test scores and ensuring no significant differences between the two groups. Twelve learners who took part in generative AI – mediated instruction were recruited for participating in interviews. Maximum variation sampling was used to select participants who represented diverse experiences with engaging with digital tools, participating in the online learning activity, and performing the task.

3.4 Instruments

1. Language performance test

The researcher developed a pre-test and post-test to measure learners' discourse-level language performance in terms of fluency, coherence, and lexical complexity. Both tests were piloted and reviewed by experts.

The reliability analysis using Cronbach' s alpha (α) indicated an acceptable level of internal consistency (α = .83).

2. Capability and Agency Questionnaire

The Capability and Agency Questionnaire asked learners to self-report on their ability to engage with generative AI tools during the learning activity, their autonomy during this activity, and their access to various resources. The questionnaire items were adapted from existing instruments developed to measure learners' agency and digital competence and used a 5-point Likert scale. Its validity was ensured by conducting exploratory factor analysis.

3. Semi-structured Interviews

The purpose of interviews was to allow participants to share their learning experiences. Interview questions pertained to their observable patterns of engaging with generative AI tools and patterns they wanted to highlight, the benefits they experienced when using the tool, and constraints they faced during the activity. Interviews also asked participants to reflect on their ability to convert mere access to generative AI into meaningful learning experiences.

4. Classroom Observation Checklist

The classroom observation informed on learners' engagement with the activity and the tools and Allowed tracking of the frequency of learners' engagement with the AI tool and the type of support their teacher gave them while working with the tool.

3.5 Procedure

Data collection took place throughout eight weeks of implementing the intervention and involved several steps.

1. Learners from the experimental and control groups completed a pre-test that served as a baseline for measuring their language performance.
2. The experimental group engaged in generative AI - mediated instruction whereas the control group received conventional instruction. Both groups worked on the same language tasks aligned with the same standards but used different means to complete these tasks.
3. Learners from both groups completed the post-test that was equivalent to the pre-test.
4. The learners from the experimental group completed the capability and agency questionnaire.
5. The interviews and classroom observations took place during and after the intervention.

The results section included Statistical tests' results and examples of learners engaging with generative AI as a means of learning English.

4.6 Ethical issues

The study adhered to ethical considerations. Before taking part in the study, participants gave informed consent. Their anonymity was maintained throughout the research process. Learners could not be forced to participate and were told they could stop their participation at any time. The data served research purposes only.

4.7 Data analysis

Quantitative data analysis was performed using IBM SPSS Statistics for Windows, Version 27.0. (IBM Corp., Armonk, NY, USA). First, descriptive statistics were generated to obtain means and standard deviations of the scores on the pre-test and post-test language performance tests for the experimental and control groups. Paired-samples t-tests were used to analyse within-groups differences in scores on pre-tests and post-tests. Independent-samples t-tests were used to analyse differences in learners' performance on post-tests. The effect size was calculated using Cohen's d to establish what magnitude differences had. All analyses were two-tailed.

Thematic analysis was used to analyse qualitative data obtained from interviews and classroom observations. Steps of thematic analysis included:

1. Familiarising yourself with your data
2. Generating initial codes
3. Searching for themes
4. Reviewing themes
5. defining and naming themes

Member checking and peer review of coding were used to ensure trustworthiness of the study's findings. Qualitative analysis of the data focused on learners' agency, development of capability, and barriers to the equitable use of AI technology in language learning.

Lastly, quantitative and qualitative results were integrated during the data interpretation phase of the study. This approach allowed the researchers to connect quantitative findings regarding learners' language performance with learners' voices around their experiences taking part in generative AI – mediated language learning and the capabilities they exercised and developed while engaged in the activity described in the Methodology section above.

4. Results

4.1 Preliminary Analyses

The dataset was checked for errors, missing values, and statistical assumptions before performing analyses. There were no missing values in the dataset. Tests of normality were conducted using Shapiro – Wilk tests. Results indicated normal distribution ($p > .05$). Homogeneity of variance was examined using Levene's test. Results indicated equal variances between groups ($p > .05$). Therefore, parametric statistics were used.

4.2 Descriptive Statistics

Table 1 provides descriptive statistics of pre-test scores and post-test scores. Pre-test mean (standard deviation) and post-test mean (standard deviation) of experimental and control groups are presented in Table 1.

Table 1

Descriptive Statistics for Pre-test and Post-test Scores

Group	Test	Mean (M)	Std. Deviation (SD)
Experimental (n=40)	Pre-test	10.58	2.12
Experimental (n=40)	Post-test	18.27	1.88
Control (n=40)	Pre-test	10.46	2.19
Control (n=40)	Post-test	13.34	2.07

The values in Table 1 indicate increases in mean scores from pre-test to post-test in both groups.

4.3. Within-Group Comparisons

4.3.1 Experimental Group

A paired-samples t-test revealed that scores on the post-test were significantly higher than scores on the pre-test for participants in the experimental group, $t(39) = 15.63$, $p < .001$. Specifically, the mean score on the pre-test was $M = 10.58$ ($SD = 2.12$) while the mean score on the post-test was $M = 18.27$ ($SD = 1.88$). Cohen's d was used to calculate effect size, which was large ($d = 2.47$).

4.3.2 Control Group

Paired-samples t-test was performed on control group as well. Participants scored significantly higher on post-test ($M = 13.34$, $SD = 2.07$) than on pre-test ($M = 10.46$, $SD = 2.19$), $t(39) = 5.42$, $p < .001$. Cohen's d for control group was of moderate size $d = 0.86$.

4.4 Between-Group Comparison

The researcher performed an independent-samples t-test on the post-test scores for each group. The analysis revealed a significant difference between the experimental group ($M = 18.27$, $SD = 1.88$) and control group ($M = 13.34$, $SD = 2.07$), $t(78) = 11.48$, $p < .001$. Cohen's d showed that the effect size was large (2.57). These results are summarized in Table 2.

Table 2

Independent Samples t-test for Post-test Scores

Group	Mean (M)	SD	t-value	df	Sig. (2-tailed)	Cohen's d
Experimental	18.27	1.88				
Control	13.34	2.07	11.48	78	< .001	2.57

4.5. Questionnaire Results (Capability and Agency)

The responses to the questionnaire about their perception about using AI-mediated tools were analyzed descriptively. Results showed that experimental group participants demonstrated strong perceived

efficacy/agency when using AI-mediated tools. The overall mean of responses was $M = 4.18$ ($SD = 0.44$) on a 5-point Likert scale.

Participants had the highest ratings on the following item:

“How well can you use AI tools by yourself” ($M = 4.32$, $SD = 0.50$)

“I feel confident completing language learning tasks using AI tools” ($M = 4.26$, $SD = 0.47$)

Participants had the lowest ratings on the following item:

“I have reliable access to technological resources” ($M = 3.85$, $SD = 0.61$)

4.6 Qualitative Findings

Analysis of interview data yielded three recurring themes:

1. Autonomy in learning practices
2. Variability in access to technological support
3. Differences in the use of AI for task completion

Some learners self-reported that they differed in how often they used the AI tool; how much they used the tool's outputs; how they completed tasks with AI assistance. Furthermore, observational data showed that learners behaved differently in class regarding attention span and patterns of engagement.

4.7 Summary of Findings

The findings indicated statistically significant differences in language performance both within and across groups. The questionnaire responses, as well as the qualitative findings helped describe learners' experiences and engagement in AI-mediated learning contexts. The next section interprets these results in light of the theoretical framework and literature review to discuss implications for linguistic equity, learner agency, and capability development when engaging with AI-mediated contexts for language learning.

5. Discussion

This study analyzed students' experience with generative AI using the Capability Approach paradigm, focusing on the students' ability in terms of performance, agency, and conversion of access into tangible outcomes. The quantitative findings showed statistically significant improvement in both groups' linguistic performance with much larger effect size in the experimental group. This conclusion is in line with previous studies demonstrating generative AI as causing performance improvements due to its adaptivity, scaffolding, and interactivity (Garzón et al., 2025; Zhu & Wang, 2025; Hon, 2025).

The experimental group's statistically significant improvement margin illustrates how generative AI writing tools allowed learners to engage with writing production as they could receive feedback and make edits while writing. This is supported by recent studies and meta-analysis showing improvement in fluency, coherence, and engagement in learners using AI-mediated writing environments (Wang et al., 2025; Lee, 2025). It should also be noted that similar to previous findings, there was also improvement in the control group (Taking traditional instruction as a baseline), which means that AI is not replacing traditional instruction but rather amplifying it (Toscu, 2024; Wu et al., 2025).

Qualitatively, two central findings about learners' experienced capability align with previous research. First, learners overwhelmingly reported having access to the agency they needed to feel confident using AI. This is in line with recent work that positions generative AI as a tool that can help students develop self-regulated learning skills and autonomy (Özturan, 2024; Roe & Perkins, 2024). Learners also reported feeling capable of making effective decisions about how to interact with the AI, when to accept its suggestions, and how to perform revisions.

Second, learners did not have equal access to using AI nor did they capitalize on this access equally. This directly ties into recent work showing that learners do not all have equal resources or backgrounds when engaging with AI tools (Krause et al., 2025). There were conversion factors at play that determined how students could access AI. This relates back to the Capability Approach theory introduced in the literature review, as students did not necessarily have the same freedom or ability to convert their access to AI into actual capabilities.

These two findings are also supported by the interviews. Learners who used the AI tool did not all use it in the same way. While some learners were actively generating prompts and rewriting the AI's responses, other learners passively copied what the AI provided. This connects to recent research that claims AI is not merely a tool but an actor that learners are interacting with (Davoodifard & Eskin, 2024). On the other hand, some learners heavily relied on the AI's suggestions and did not spend too much time revising them, which has been noted as a problem in previous literature (Lo, 2025).

However, what has not been discussed as much is how access to AI tools does not always equate to capability. Many articles have discussed how AI improves learners' access to language learning (Weng, 2025; Wang et al., 2025). Access was assumed to allow learners to learn more or better. However, what this study shows is that learners can have access to AI, but if they do not know how to utilize it or lack the confidence to do so, they will not see the same benefits that their peers might see.

In many ways, this finding speaks to the heart of this paper and supports the Capability Approach. Simply providing learners with resources does not improve equity. Instead, what is important is whether learners have the real opportunity to utilize those resources. This paper has taken that theoretical standpoint and applied it to the context of AI in language learning. The results of this study have shown that linguistic equity should be measured by learners' capability with AI instead of access.

In fact, this study also speaks to the divided discussion of AI widening vs. narrowing the equity gap. Some researchers have argued that AI has the potential to close the equity gap by providing scalable access to quality learning help. Others have argued that AI will further the equity gap as those with access, knowledge, skills, or institutional support will benefit more than their disadvantaged peers will (Garzón et al., 2025; Zhu & Wang, 2025). This study found that AI can do both at the same time.

Theoretically, this research contributes to the existing body of knowledge by uniting ideas from capability theory, sociocultural theory, and ideas regarding learner agency. This study has shown that any discussions about learner outcomes when using AI cannot be divorced from the context of:

1. Learners' access to the technology
2. Learners' individual agency
3. The cultural and institutional environment the learners are situated in

This holistic viewpoint begins to fill a large gap in current AI research as most studies tend to focus on one factor at a time (Lee, 2025; Wang et al., 2025).

Additionally, this study helped provide evidence to support the model introduced in the theoretical framework. Recall that learner agency was hypothesized to mediate the relationship between access and outcome. As shown through both quantitative and qualitative data, learners had different experiences using AI. While some learners were actively engaging with the tool by rewriting prompts, others were completely ignoring the prompts and were just copy-pasting what the AI gave them. This notion of learners' agency being the driving factor behind whether learners can successfully convert their access to AI into real capabilities directly supports recent works focusing on AI and learner agency (Roe & Perkins, 2024).

In conclusion, this study adds to recent calls to change AI research and application from a tool-centered approach to a learner-centered one. Rather than asking how AI can better assist learners, this study asked how learners can effectively use AI. Understanding learners' capabilities, experiences, and context is imperative to truly help learners and narrow the equity gap.

The conclusion section will discuss the study's implications, major takeaways, contributions to the field, and suggestions for future research.

6. Conclusion

Findings suggested access in and of itself did not automatically translate to equitable discourse-level outcomes amongst participants despite quantitative evidence showing those who were able to access generative AI tools scored significantly higher than their counterparts who could not during the study. This was partially due to learner agency as students utilized the tool differently and had varying levels of digital competence. Qualitative data showcased differences in learner usage of the generative AI tool. Overall, learners still managed to access other forms of support to complete the task.

As the researcher, this study affirms the theoretical argument of the Capability Approach because students were given access to the same resource during the study; however, they were able to convert that into actual learning and completion of task completion at different levels. Despite having access to this resource, each learner's individual capabilities such as digital skills and access to resources outside of class influenced their ability to complete the task. This study built upon previous applied linguistics literature on generative AI by providing empirical evidence that generative AI can act as a mediational tool that is still dependent on the learner.

The study also serves as an early contribution to the body of work regarding critical AI research. This research attempts to take back some of the hyperclaims around AI by showcasing how technological innovation does not inherently equate to equity. By reimagining what equity in linguistic outcomes in generative AI-mediated environments can look like, this study moves the conversation beyond access and into learner capabilities.

7. Pedagogical Implications

There are several pedagogical implications that arose from the results of this study. As demonstrated, simply providing students with access to a tool does not guarantee that they will know how to or even be able to use it to enhance their learning. As such, language teachers and teachers who wish to integrate generative AI into their pedagogy should focus less on the tools themselves and more on the learners. Teachers should not assume that all learners will use generative AI tools effectively.

Teachers can work to enhance students' ability to utilize generative AI through providing structured time to interact with the tool, space to evaluate the quality of its outputs, and opportunities to learn from its usage. All of these scaffolding opportunities allow students to take agency of their learning

when working with generative AI. Finally, this study highlights the importance of equity-minded pedagogy and instruction design. Although all learners were given access to the same technological tools during the study, not all learners were provided with the necessary conversion factors to turn that access into capabilities.

In my opinion, this is a glaring issue that must be addressed when incorporating AI into ELT, specifically in contexts where students may not have equitable access to digital resources outside of school. Learners may have access to a tool at school, but what good will that do if they do not have the internet at home? Providing learners with the tools is simply not enough.

8. Recommendations

Pedagogical suggestions include encouraging students to complete high-order tasks when interacting with generative AI. While modelled writing can be helpful, teachers should not have students accept the AI's first draft. Instead, learners should be required to interact with that first draft by improving upon it and reflecting on how they were able to fix it.

At an institutional level, teachers should receive proper training on how to integrate generative AI into the classroom. By teachers having the opportunity to learn about generative AI through a PD workshop first, they will have the knowledge necessary to train their students on how to use the tools effectively.

Lastly, policymakers should work to create standards or guidelines for teachers and students to follow when using AI. By having a set of standards that AI use in ELT should follow, teachers will have guidance when question arises. These standards should be grounded in equity as the ability for learners to have the same digital access and competency outside of the classroom may vary.

9. Future Research Directions

Although this study makes contributions toward addressing critical gaps in knowledge about linguistic equity in AI-mediated language learning, there are also opportunities for future research directions. First, additional research may be conducted to understand the role of sustained AI-mediated experiences in developing linguistic capabilities at varied levels of proficiency and among different populations of learners. Future research could adopt longitudinal research designs. Second, research may be conducted to understand how individual or contextual conversion factors impact learners' freedom to convert their opportunities into valued language learning outcomes. For instance, how might learners' socioeconomic backgrounds, institutional resources, and classroom cultures influence their ability to utilize AI-mediated tools to learn languages? Investigating this question can advance understanding about equity in AI-mediated language learning. Third, future research may draw upon more robust analytic models such as mediation and structural equation modeling to test relationships between constructs outlined in this study (e.g., access and learning agency). Fourth, future studies could apply the capability-based framework to different language learning domains (e.g., reading, listening, intercultural communication) and contexts (e.g., secondary education, informal learning).

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